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H. A. BALDRIDGE,
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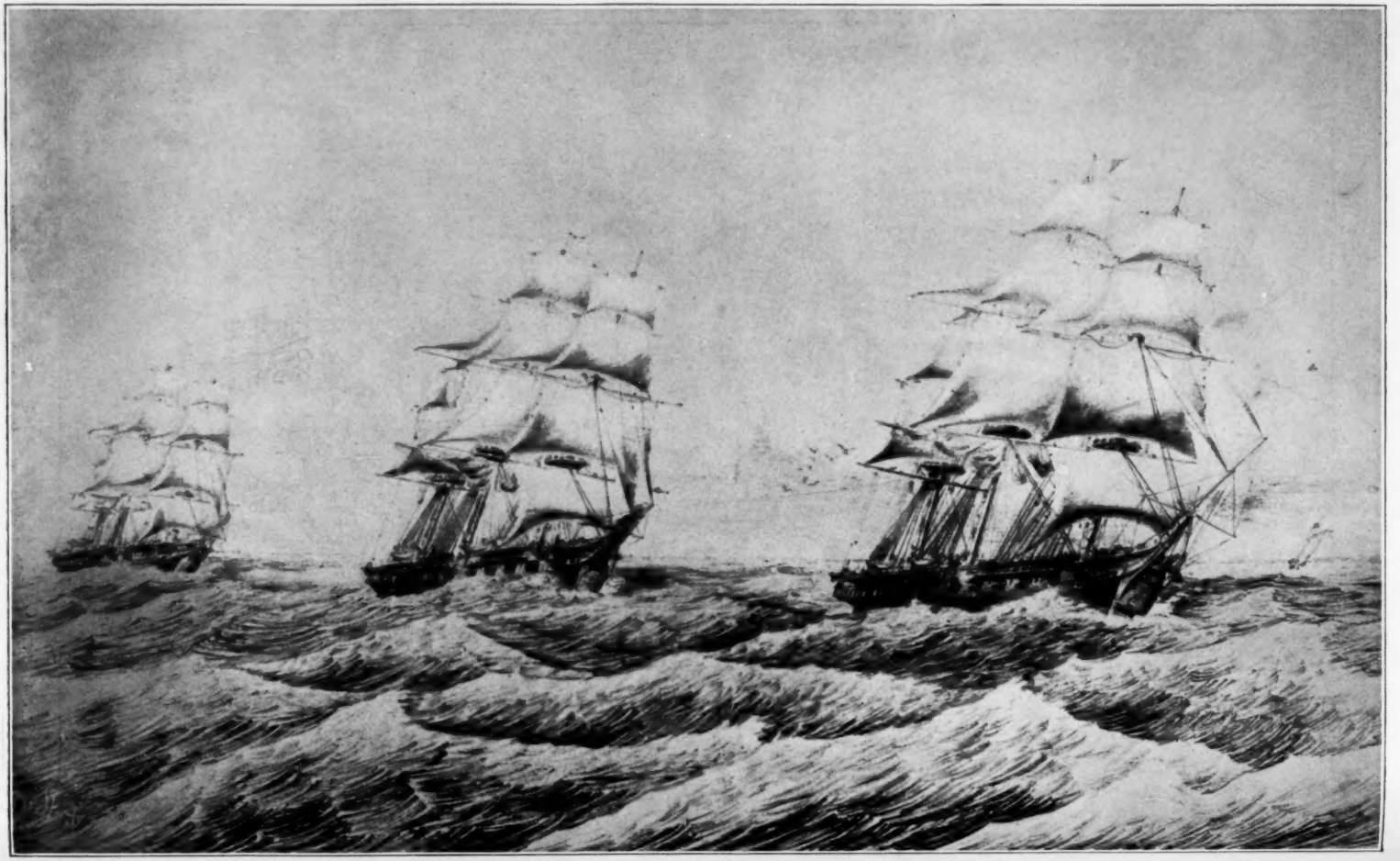

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UNITED STATES NAVAL INSTITUTE PROCEEDINGS

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PRIZE ESSAY, 1927

Our Weakest Link

By LIEUTENANT COMMANDER THOMAS L. GATCH, *U. S. Navy*

A nation which goes to war unprepared educates its statesmen at more expense than its soldiers.—Upton

THE Navy grows too introspective and so tends to forget that in war the military part of the national exertion is but a fraction of the whole. Did the Navy fully realize this fact, it would seriously ponder the question that at once arises: what steps have been taken to assure that the military part is properly coördinated with the other parts of the national exertion; or, to put it the other way, what steps have been taken to assure that the other parts of the national exertion are properly coördinated with the military effort? Coöperation is a fundamental principle of success. When we so carefully subject all naval plans to the searching test of this principle, how much more important it is to make sure that the whole national plan meets the principle. This paper is an attempt to inquire into the proper rôles to be played by the statesman and the sea officer in the tragedy of war; an attempt to discover how each in playing his rôle may bring the drama to a successful conclusion.

I

The citizen of the United States assumes that if he through Congress supplies the Navy with material and men, the Navy will make these, ship for ship and man for man, the best in the world. In this assumption he is wholly justified. If the Navy falls down it violates the trust placed in it. The Navy knows this full well, and strives continuously to achieve perfection. The money is supplied by the people. The total is usually less than is needed but it is given the Navy in nearly the distributions asked. With this money the Navy designs and makes or buys its material. If in quality it is not the best in the world, class for class, the fault is the Navy's alone. It may be deficient in quantity—that in the final analysis lies within the province of Congress—but it may not be deficient in quality. So much for material. The personnel is more important. The Navy has short enlistments—obviously a handicap. Nevertheless, we must face facts, not theories. Theoretically a twelve year enlistment would be far better than a four year one. Practically it is another matter—the Navy could not get recruits. Facing this practical aspect, the Navy has done the best thing possible; it has asked and Congress has most liberally granted inducements to a man to serve sixteen or twenty years. Of course the result comes slowly, but it comes. In fine, the citizen through Congress has supplied some material; he has supplied some trained men and is supplying more and more of them through the very means the Navy has asked. So far as concerns the quality of the Navy there can be no passing of responsibility on to Congress or to the

apathy of the country. The quality of the Navy is squarely the Navy's duty.

Having forged the best navy in the world, is the work of the Navy done? The weapon is finished and kept keen and at hand against the time of need; but, when that time comes, what of its use? Now, paradoxical as it may sound, in the use of the Navy, the Navy itself plays a minor part, for: first, the Navy is the tool of the statesman; and second, the Commander-in-Chief, the President, is not himself of the Navy. He has a higher rôle. The use is directed by the President; the details of use are alone the Navy's. If an impracticable use is directed, all the technical perfection, all the strategical excellence, all the tactical preëminence in the world will be of little avail. Although, in such a case, the Navy would have no choice but to obey its orders, the Navy would get as much pleasure from the procedure as would any artificer in seeing a fine tool put to a totally improper use. What is far worse, the country would pay, as it always does, in money squandered and lives needlessly spent. Can the Navy say this is none of its business?

The Navy cannot in good conscience rest content in making itself in every way the best possible. It must go beyond this end and so prepare that when the statesman is forced to call upon the Navy to defend his policies, the statesman may find his fearful task lightened so far as the Navy may do it, and consequently the possibility of directing an improper use lessened. A moment's reflection will show that a mistake in policy may nullify the work of years in creating the finest military force. Policy must control. A fleet may sometimes be well sacrificed to policy; a glorious strategical opportunity may sometimes well be let slip for policy. Clausewitz enunciated this truth years ago in an axiom: "War is only a continuation of state policy by other means." This is irrefutable. It becomes more apparent as it comes more to be recognized that wars are fought by nations, not by armies and navies. Yet it cannot be apparent to all, for General Ellison, an eminent British officer, has said: "Politics and strategy are radically and fundamentally things apart from one another. Strategy begins where policy ends."[1] Remarkably enough, in the prefatory note of the same volume in which the foregoing occurs, we find the reaction of the statesman: "General Ellison . . . . seems to see his way, at some undetermined moment, to hand over the strategy of war to 'professionals'! The transition moment is so difficult to fix, the strands of military and civil life are so intertwined, that his problem appears to me insoluble."[2] This point has also received the attention of General Sir Frederick Maurice, who comments very pithily:

> . . . . it has been a common practice for British writers on military matters to fulminate against political interference in strategy, and it has not been difficult for them to find numerous instances both in the history of the American War and in that of other wars in which political interference has been utterly mischievous. These fulminations leave the statesman cold, because he is aware that there must be civilian control of strategy, and he is therefore apt to ascribe them either to military ignorance of political science or to the soldiers' lust of power.[3]

Fortunately in the United States, due primarily to the wisdom of our forebears who drafted our organic law, we have been largely spared this error. It is well, however, to keep the error in mind that it may be promptly recognized, and to remember "that in the modern nation in arms the military part in the combined effort is but twenty-five per cent of the whole."[4] The duty of the Navy is not to make itself as perfect as may be—that is but the means—the duty of the Navy is to end war quickly.

The statesman must control. The consequent terrific responsibility is his. We might expect to find that the subject had been given profound study. Instead, we find it authoritatively stated: "There is no standard work on war in the English language, no volume of permanent value which deals with the organization, maintenance and employment of armies from the point of view of the statesman and the citizen."[5] The lack of such a work is lamentable. Unquestionably the matter is within the domain of the statesman, but equally unquestionably, in such a government as ours, the statesman has not the time to work it out. It is not worked out until war comes, and then, apparently, it takes about three years. Every war that has ever been waged had for its object peace. Is it inherent in a democratic

[1] *The Perils of Amateur Strategy*, p. 100.

[2] By the Rt. Hon. Viscount Esher, p. vii.

[3] *Statesmen and Soldiers of the Civil War*, p. 152.

[4] *Ibid*, p. 149.

[5] Henderson, *The Science of War*, p. 12.

government that it must war for three years before it can learn to fight for the real object? The relation of strategy to policy is basic. In the study of the art of war this should get early and thorough consideration. The statesman's duty is to study the art of war just so far and no farther.[6] However, the matter lies in a sort of no man's land, beyond the duties and responsibilities of the generals and admirals, beyond the engrossing peace-time duties of the statesmen. The weak points in an army, in a fleet, in any organization, are where one sphere of responsibility is relieved and another takes over. As matching joints may leave enough for the entrance of a wedge, the only safe rule is to have a slight overlap. It is the duty of the Navy to overlap a little on policy. The matter is too grave to allow any nice scruples to stand in the way. The Navy is the tool of the statesman, but surely not an unthinking one.

Admitting the necessity, the question becomes: how can the Navy within its limitations do anything? Let us follow the methods of the masters and turn to history.

We are living in the age of representative government. The present is also the age of representative war, that is to say, war wherein the military leader is the representative of the head of the government and not the head himself. History proves that representative war may be conducted efficiently. It also proves, as is to be expected, that it is harder to conduct such a war efficiently than it is to conduct a direct war with the head of the state in command in the field. It is always harder to act through an agent than directly. But that is beside the point, for as long as we have representative government we shall have representative war. The point is to study the successful systems that history records for the conduct of representative war, and profit therefrom. Three successful systems stand out. They were: the system the English used in the Seven Years' War; the system the Prussians used in 1864, 1866, and 1870-71; and the system Lincoln used after Grant was made Commander of the Armies.

Of these in their order.

II

The Seven Years' War is of signal interest to us on several counts, for it was not only a beautifully conducted war strategically, but it immediately preceded the American Revolution, it determined the destiny of North America, and many of the men who wrote the Constitution fought in it. It left its imprint on that immortal instrument. It is today a vital force.

The Seven Years' War was Pitt. Pitt did not become the virtual head of the English government until a year after the war had opened, and he fell a year before it closed, but in the intervening five years he molded the world. All statesmen nowadays are politicans; unfortunately not all politicians are statesmen. Pitt forced himself into power by the expedients of the politician. "Walpole was a minister given by the King to the people; Pitt was a minister given by the people to the King,—as an adjunct."[7] Then Pitt proved himself a statesman—one of the greatest—to the salvation of England and America.

During the years Pitt was in power the war was consistently conducted according to what he called "my system," which has been epitomized:

> Throughout the period of his triumphal progress Pitt leaned on two men of marked ability, Lord Anson the sailor and Lord Ligonier the military commander-in-Chief. For practical purposes these three formed a triumvirate to conduct strategy and operations, Pitt the statesman and Foreign Minister being *primus inter pares.*[8]

We may now trace the imprint of this system on our Constitution, and it is worth doing. Pitt was to all intents the head of the government; the head of our government is the President. Pitt had commanders associated with him but he was *primus inter pares;* hence, "The President shall be the Commander-in-Chief of the Army and Navy of the United States. . . ." The wisdom of this provision was so well comprehended in 1787 that the clause was scarcely debatable, and is barely mentioned in the *Federalist:*

> Of all the cares or concerns of government, the direction of war most peculiarly demands

[6] "Evidently . . . . the statesman must be acquainted with war; he need not be a master of the art, he need not himself be able to handle fleets or armies; but he ought to have a true knowledge of what can and what cannot be done by those instruments, and of the way in which their use or misuse will react upon the well being of the community which puts its trust in him."—Wilkinson, *Government and the War,* p. 10.

[7] *Samuel Johnson,* Boswell's *Life* (Oxford edition), I, 470.

[8] Ellison, *The Perils of Amateur Strategy,* p. 131.

those qualities which distinguish the exercise of power by a single hand. The direction of war implies the direction of the common strength; and the power of directing and employing the common strength forms a usual and essential part in the definition of the executive authority.[9]

But note that what the framers of the Constitution meant when they provided that the President should be Commander-in-Chief was not that he should exercise tactical command but that he should have in his single hand, just as had Pitt, the power to direct war. The rare combination of practical statesmen and soldiers that drafted our Constitution had learned this lesson from the recent past. Have we adhered to the system they bequeathed us? Have we conducted war as Pitt did?

To better understand Pitt's system it is illuminating to make a comparison with the World War. There is an interesting and instructive analogy between the Gallipoli expedition and the attack on Rochefort in 1757. Gallipoli originated from the request of the Russians for relief from the pressure being put upon them by the Turks; Rochefort from the request of Frederick the Great for relief from the pressure the French were putting upon him. Gallipoli was the child of Churchill, forced through against expert advice by the insistence of that one man over the mistrust of almost every one else: Rochefort was the child of Pitt, forced through despite the fact that "Anson grumbled"; Ligonier "for some time . . . . was doubtful about the whole design"; Hardwicke—that combination of brilliant judge and less brilliant statesman—"did not believe in the expedition"; "the expedition had not yet sailed, and in one last appeal the old King implored Newcastle to get it diverted to Stade."[10] Both Gallipoli and Rochefort were failures in their immediate objects; and yet in their ultimate objects, whereas Gallipoli was an egregious failure, the effect of Rochefort "had been to reduce the spirits of the French government so low that they made a representation to Vienna with a view of getting rid of the continental entanglement, and leaving their hands free to deal with England and save their American Colonies . . . . it was absolutely necessary for them to withdraw . . . . a considerable force for the protection of their own coasts."[11] Both Rochefort and Gallipoli were eccentric operations; but the former was carefully limited to a raid, the latter actually became an attempted invasion.[12] In the Rochefort expedition the civilian minister in control recognized and followed strategical principles; in the Gallipoli expedition the civilian minister ignored them. But in both cases the civilian overrode the expert advice. In the one case this resulted in substantial benefit; in the other it came within an ace of bringing ruin. In seeking to prevent a future Gallipoli the means must not be such as also to preclude a Rochefort. From this it is clear that the absolute divorce, once war is declared, of policy and strategy—besides being an impossible dream—is not the answer.

What is the answer? There would seem to be considerable likeness between Pitt and Churchill; yet the one seems to have been just about always right, the other wrong. Both Pitt and Churchill had able advisers, although Pitt unquestionably had the better, for he received pretty constant advice from Frederick, and, incidentally, almost always acted upon it. Pitt found or made time to ponder and digest the advice he got; Churchill was so rushed that he seems to have jumped to a conclusion and then used only the advice that bolstered that conclusion. Pitt confined himself strictly to questions of the higher command, and at that he worked himself very nearly to the breaking point; Churchill, caught in a vicious system, found himself charged with practically everything concerning the primary effort of the greatest empire in the greatest war there has been. What Churchill was supposed to do staggers the imagination. The man that conducts war serves a jealous mistress; he cannot also serve another.

For England the Seven Years' War was essentially a maritime war. Pitt's policy was to make it so and he succeeded. The theater of war spread from Canada to India. In the nature of things the details of all the operations had to be left to the commanders on the scene. In other words, Pitt, within just bounds, respected the *initiative of the subordinate.* Although con-

[9] No. LXXIV (Hamilton).

[10] Corbett, *England in the Seven Years' War,* I, 191, 192, 198.

[11] *Ibid,* p. 244.

[12] Clausewitz has pointed out that 50,000 men can defend a district against 50,000, but that 1,000 cannot defend it against 1,000; to be secure against the 1,000 will take almost as many as to defend against 50,000.

ditions might have forced the observance of this great principle anyway, it was recognized and knowingly adopted.

Pitt himself defined the object of the operations, but left the method of attaining it to his Commanders, to whom he allowed a large measure of latitude and discretion. He never failed to make use of every incentive which could spur them to action and entire success. He insisted on the initiative being taken and risks run, but he was always as generous in cases of failure as he was appreciative of good work. He succeeded in inspiring the Admiralty and the War Office with his own spirit and energy, and seconded their efforts with all the resources of the country. The lesson which his practice may teach every Government engaged in war is, that while statesmen alone can direct all the Departments of State, and combine Navy, Army, Diplomacy, and Finance to the common end, those responsible for the actual operations must be unfettered in their decisions, and in their methods of carrying them out.[13]

Save Wolfe, who was too young at the start and until his deeds overcame the distrust of the old King for young commanders, and Anson, who was afloat only a few months during the war and was about seventy, there were no really great English commanders—none comparable to the giants that were to come before the business of fighting the French was finally done. And yet England won more by this war than she has by any other. The system is more important than the commanders.

Pitt's fall is interesting. England had won North America, India, Africa, was on the way to get all of the French West Indies, had seized Belle Isle, had secured Hanover and had lost only Minorca. The foundation of the British empire had been laid; but that very fact, the fear of great colonial expansion and the fate of Spain, was one of the things urged against Pitt! There was a strong peace party. In this pass Pitt got positive proof that Spain was coming into the war as an ally of France. Spain was holding off till her American convoy got home. Pitt was for getting the convoy. Was he right? A deep student of this war, certainly not unfriendly to Pitt, has remarked on this:

Being convinced that war with Spain was inevitable he was bidden by pure strategy to strike at once. Every war we had had with Spain had opened with an attempt upon the plate fleet. One more such attempt could hardly have given us a worse reputation, especially as in this case it would probably have been preceded by the withdrawal of our ambassador. Yet was the game worth the candle? . . . . It is very doubtful . . . . even at the eleventh hour Spain might be persuaded there was an easier way of obtaining her end than by burning her fingers for France. There was much to justify at least an attempt to stay her hand, and it is difficult to read the reasoned arguments of such a man as Hardwicke without feeling that the great majority of sagacious and experienced statesmen would have been like Anson and Ligonier, on his side and the King's and not on Pitt's.[14]

Possibly Pitt in becoming a master of war was losing a little of the cunning of the master of state. Can anyone read of his fall without thinking of the opening of the World War by Germany? Pure strategy can ruin any nation.

III

The Prussian system was conceived by von Clausewitz, developed by von Roon, perfected by von Moltke, transmitted to the Reich, and ruined by the War Lords. The success of the Prussian army dazzled the world. Of course the Prussian methods were copied. All the nations fell over themselves to adopt the Prussians' general staff system, their scheme of training officers, their intelligence system, their planning section, their literature, everything. In the course of time other nations probably even improved on the Prussian model. The Prussians hid nothing. They wrote very fully. They freely sent military missions to the smaller countries that asked for them. But they had something up their sleeves.

When towards the end of his life von Moltke said that in whatever direction other nations might develop their strength, Germany would remain supreme in the command, many of us thought that he was referring to the German General Staff system. We were, I think, wrong in this. Von Moltke meant that Germany had thought out a system for the conduct of war and the other nations had not. When mobilization was ordered, the old King William, Bismarck, and von Roon knew their duties and places as thoroughly as did the humblest reservist tramping to his place of muster. This was not because they wore the *pickelhaube* instead of the top hat, but because they had thought about the matter.[15]

In other words the Prussians had that which Colonel Henderson lamented the English lacked—education in "the organization, maintenance and employment of armies from the point of view of the statesman

[13] Foster, *Organization*, p. 236.

[14] Corbett, *England in the Seven Years' War*, II, 207-8.

[15] Maurice, *Statesmen and Soldiers of the Civil War*, p. 149.

and the citizen." They were well content to see and aid others grasp the form and miss the substance. In the sequel, of course, when the system descended to mediocre hands, they fooled their own descendants. They were a little too clever.

We are still enamored of the Prussian system. It is well to recollect that the German empire was built by Bismarck and not by von Moltke. Without the army the empire could not have been built, but the army was a tool, a means, not an end. Bismarck said:

> The task of the commanders of the army is to annihilate the hostile forces; the object of the war is to conquer peace under conditions which are conformable to the policy pursued by the state. To fix and limit the objects to be attained by the war, and to advise the monarch in respect to them, is and remains during the war just as before it, a political function, and the manner in which these questions are solved cannot be without influence on the method of conducting the war.[16]

Ponder also his careful explanation to von Moltke on the eve of the Franco-Prussian War:

> Success, however, essentially depends upon the impression which the origination of the war makes upon us and others; it is important that we should be the party attacked. . . . . [17]

Contrast that with Germany's opening of the World War. Is any room left for doubt that the interplay of policy and strategy was thoroughly comprehended and provided for in the Prussian system?

Perhaps the strangest thing is that Bismarck, the civil head of the government, accompanied the army in both the Austrian and the French wars. True, in the French war, so far as military decisions were concerned, he was merely an onlooker, so that he complains he knew even less of its progress than the princes nominally commanding the armies; whereas in the Austrian war he seems to have stuck in his oar at least once to get the King to overrule the generals. However, it is well known how perturbed Bismarck was as the seige of Paris dragged, and the active steps he took to hasten events. One shudders to think what a mess even Pitt would have made had he been able to go with the fleet. The dominance of the army in Prussia was so complete that there was no fear. Bismarck was one of the world's strongest men; he was wholeheartedly supported throughout by both von Moltke and von Roon; he had the entire confidence of the King. Still the hegemony of the soldiers was such that although Bismarck was with the army in the field he was unable to interfere. With a weaker man than Bismarck, with less powerful support, would not the dominance of the military even then have become exclusive in all matters of government and pure strategy have come into its own? Was there a weakness in the far-famed Prussian system? Was not its strength after all perhaps as much Bismarck as von Moltke?

We know how the system finally worked out: "Witness . . . . Ludendorff's continual intrusion in diplomatic and in internal German affairs, resulting in permanent conflict between this semi-dictator and the regular government of the Empire."[18] Somehow the mere thought of a Ludendorff intruding on Bismarck's diplomatic preserve tickles the risibilities.

The first of the conditions of success in war is policy. The succeeding conditions such as thorough indoctrination of the officers, the development of initiative, exhaustive study and training, were carried through with Prussian thoroughness. The great condition, separation of command from the other functions, was rigorously observed. The standard work of the Prussian army stated that the mixing of administration with conduct of war was a "terrible mistake for the reason given, that it would be impossible that a man would be found who . . . . was equally master of the art of military administration and of handling armies."[19]

Now mark the great change from the Prussian system to the German system of the World War. What grew to be the typical German opinion was that: "In view of the swift march of modern military operations, politics will retire more and more into the background after the first roar of the cannon."[20] In other words war was to be short and snappy. The initial strategy would carry the war through; there would be no time for more. Politics, which works slowly, would have had scarcely time to catch its breath before it found itself at the peace table. Under such circumstances, of

[16] *Bismarck—The Man and the Statesman*, II, 106.
[17] *Ibid*, p. 101.
[18] Castex, *Questions of General Staff.*
[19] Von der Goltz, *The Nation in Arms*, p. 142.
[20] *Ibid.*, p. 141.

course, the statesman would have nothing to do till the war was over, and consequently war statesmanship ceased to have importance. This was a momentous change from the views of Bismarck and his great confrères. Such the theory—and then we see the fatuous step forcing Great Britain into the World War within three days and precluding any possibility of a short war. The statesman had been relegated to the background. Unrestricted submarine warfare was on and off and on. At last pure strategy reigned. There were no amateurs. In the Franco-Prussian War the Prussians committed military errors that, had the French had a leader of ability, might easily have been serious. Throughout the entire World War there was no military error of great moment committed by the Germans; and yet in the end a virtually undefeated army was beaten, an undefeated fleet was abjectly surrendered. Verily there is more to war than military perfection.

IV

We have glanced at a system for the conduct of representative war evolved by an aristocratic landowning and commercial government; at a system evolved by an aristocratic and landowning and military government; let us now turn to our own final Civil War system, evolved by just such a government as we still have.

The Confederacy contained a united and determined people, brave almost to a fault. The region occupied was extensive and well adapted to defense, and could be and speedily was made entirely self-supporting. It is almost axiomatic that under such circumstances a people fighting for its liberty cannot be permanently conquered.[21] Up to the spring of 1864 the Confederacy had won the war; by the spring of 1865 "the resistance of the Confederacy was crushed, its cause lost, and every interest and principle that had been invoked in its behalf abandoned forever. The causes of this tremendous defeat deserve to be very carefully scrutinized."[22] We have not given this war the close study it, above all other wars, should get from us. Thoughtlessly the whole thing has been dismissed as a matter of superior numbers and of the abilities of commanders in the field. The complete upset of the course of the war in so short a time as one year could not have been effected without commanders of the first rank, neither could so complete an upset have been accomplished by such commanders alone. The world has never seen a better system for the conduct of representative war than that evolved by Grant and Lincoln.

Contrast the system of 1864 with that of the year before. In 1863 Lee started the campaign that ended with Gettysburg by dividing his army into three parts, each separated about forty miles. Hooker faced Lee with an army half again as big, and Hooker's army was massed within thirty-five miles. Of course Hooker saw his opportunity; the merest tyro could have seen it. He asked permission to attack. He was ordered under no circumstances to let any part of Lee's army get between him and Washington! Not the least part of Lee's genius was that he knew and dared count on the political weakness of his enemy. And right here it is well clearly to understand that Lincoln was not a weak man. Time and again it was shown that under his velvet glove the hand was hard as had to be. History has justly appraised him. His statesmanship in respect to the conduct of war was of the same supremely high character as his statesmanship in other regards. Again, after Lee had crossed the Potomac, he separated his army. Even Lincoln in Washington now had information enough to see the great weakness of the Confederate position and was for attacking. He was overruled by his Cabinet. Napoleon said: "A council of war never fights." The defense of Washington had hauled McClellan back from within sight of Richmond after he had reported, probably correctly, that with 35,000 more men he could take it. The defense of Washington had been a millstone around the neck of each Federal commander. Yet in 1864 Early could have taken Washington, and the only reason he did not attack was that the defenses appeared to be fully manned—by reënforcements that had arrived from Grant's army within the hour. In this strait even the President appealed to Grant to remove the Army of the Potomac from before Richmond; but the Cabinet, the Secretary of War, the precious Chief of Staff, said not

[21] Pitt had once prophetically stated in Parliament, "Conquer a free population of three million souls? The thing is impossible."

[22] Wilkinson, *War and Policy*, p. 32

a word.[23] Grant had already detached all the men for the defense of Washington he proposed to. He could at last, however, name a commander for the defending forces. He detached one indoctrinated general, and within a few months the hoodlums of Richmond painted on a gun going forward to the force threatening Washington: "For General Sheridan care of General Early." At that it was probably not so much because it was Sheridan as because it was a general under the ægis of Lincoln and Grant, and orders from Washington ceased. The system was perfected. Every part of the active armies of the United States was under the direction of the Commander-in-Chief of the Army and Navy and of the Commander of the Armies. So far as concerned the operations of those armies no one else had anything to do but to do as he was told. What a change a year had wrought.

The great change in the Federal government's conduct of the war has been explained:

> In March, 1864, Grant was appointed Commander-in-Chief. Lincoln abdicated his military functions in his favor, and the Secretary of War had nothing more to do than comply with his requisitions. Then, for the first time, the enormous armies of the Union were manœuvred in harmonious combination, and the superior force was exerted to its full effect.[24]

To state that Lincoln abdicated his military functions, unless the word *military* is used in its very narrowest sense, is incorrect. The correct statement would be that Lincoln at last succeeded in reassuming the command functions of the presidency,[25] and then delegated those functions, in accordance with a true conception of the *initiative of the subordinate,* to his command of the armies. "The particulars of your plans I neither know nor seek to know. You are vigilant and self-reliant; and, pleased with this, I wish not to obtrude any constraints or restraints upon you."[26] Lincoln abdicated nothing. He had taken an oath to be Commander-in-Chief. He followed every move with the minutest scrutiny, loath to interfere, as he had always been, but ready to, had it become necessary. That Grant understood clearly his relation to the President is evidenced by the fact that when Lee wrote and suggested a military convention Grant sent the letter on to Washington and asked instructions. This was the very first time Grant asked instructions from Washington. The war had arrived at the higher sphere where policy directly controlled, and went beyond the authority delegated to the military commander. Sherman later misunderstood this to his grief. Grant's reply from Stanton, but written by Lincoln in his own hand, was:

> The President directs me to say that he wishes you to have no conference with General Lee, unless it be for the capitulation of Lee's army, or on solely minor and purely military matters. He instructs me to say that you are not to decide, discuss, or confer upon any political question; such questions the President holds in his own hands and will submit to no military conferences or conventions.[27]

The master of state could not delegate affairs of state to the military commander any more than he would delegate military affairs to the statesmen. But for the terms of capitulation of the enemy army, knowing the magnanimity of his great commander, he sent no trammeling instructions. Grant was able to make terms that more than any other one thing went so far to heal the wounds of the war. Lincoln's despatch is great for the things it does not say. All of which shows that when Grant came east Lincoln at last had the chance to be Commander-in-Chief in the way he had intuitively known from the very first he should be; in the way the Constitution meant him to be.

The part of the Secretary of War in the system is important. At the very beginning of the war:

[23] The Assistant Secretary of War on July 12, 1864, sent the following extraordinary despatch to Grant: "Nothing can possibly be done here for want of a commander. General Augur commands the defenses of Washington, with McCook and a lot of brigadier-generals under him . . . . the Secretary of War directs me to tell you . . . . that advice or suggestions from you will not be sufficient. General Halleck will not give orders except as he receives them. The President will give none, and till you direct positively and explicitly what is to be done, everything will go on in the deplorable way in which it has gone on for the past week."

[24] Henderson, *Stonewall Jackson,* (1913 ed), I, 208.

[25] As early as August 29, 1862, Lincoln sent a despatch to McClellan giving advice and then adding: "But I wish not to control. That I now leave to General Halleck, aided by your counsels." Halleck's weakness coupled with political pressure soon made it impossible to live up to this.

[26] Letter from Lincoln to Grant, April 30, 1864. Observe that it was the *particulars* he did not seek to know.

[27] See Sherman's *Memoirs,* II, 359-60.

So completely overwhelmed was the Secretary of War in providing arms and supplies for the 75,000 militia, that the subject of organizing the volunteers and regulars called out by the President's proclamation of May 3, (1861) was tossed over for solution to the Secretary of the Treasury.[28]

As early as October, 1862: "The Secretary of War had withdrawn from active interference in matters of command."[29] It is easy to see why. The Secretary of the Treasury had his own troubles by then—plenty of them. There was no one other than the Secretary of War to see to the supply of men and munitions. All the bureaus having these duties were directly under him. He simply had to direct and coördinate. As the armies grew to a million men it became utterly impossible for the Secretary of War to undertake any duties beyond these. So, without any legal change, simply by the inexorable march of events, supply and operations, administration and strategy, became separate and distinct.

In the Navy a similar situation worked itself out. The office of Assistant Secretary of the Navy was created July 31, 1861. By a stroke of fortune that seems almost a direct intervention of Providence there was appointed to this office Gustavus V. Fox. Fox had spent most of his life in the Navy. The Secretary of the Navy soon found himself fully occupied with procuring supplies, ships, and men—and with writing his diary. Fox corresponded directly with the admirals, drew the strategic plans, became the chief of naval operations. To Fox, Halleck came for naval coöperation; to Fox, the President turned for advice on naval operations.

Was there ever a more beautiful understanding of indoctrination than this?

My opinions on all matters are very strong, but if I am possessed properly of the views of my superiors, I make them my study, and conform my conduct to them as though they were my own.[30]

The cry of the junior for the doctrine; the pæan of praise when at last he gets it:

That we are now all to act on a common plan, converging on a common center, looks like enlightened war. . . . . Glad I am that there are minds now at Washington able to devise. . . . . I now know the result aimed at; I know my base, and have a pretty good idea of my lines of operation. No time shall be lost in putting my forces in mobile condition.[31]

Did the Prussians ever realize better than Grant the necessity of allowing the indoctrinated subordinate his initiative?

The more distant commanders, however, Grant meant to leave, in all the details of their operations, quite as untrammeled as he himself had hitherto been. He, indeed, assigned them their objective points and their armies; told them what they were to do and gave them the means with which to do it; but the use of those means, the accumulation of their own supplies, the tactics of their battles, and in some degree the strategy of their own campaigns—these were left to each commander's judgment.[32]

The great system of Lincoln and Grant—very logical, very simple. "In war everything is very simple, but the simplest thing is difficult."[33]

V

The points of concurrence in the three successful systems for the conduct of representative war imaged in the foregoing may be briefed.—

Major control by civilian head of government.
- English system—Yes.
- Prussian system—Yes. Strategic plan approved in advance.
- American system—Yes.

Direct relation between head of government and senior military heads—"triumvirate."
- English system—Yes.
- Prussian system—Yes, except there were only two members, as the navy was non-essential.
- American system—Yes.

Severance of operations from administration and supply.
- English system—Yes.
- Prussian system—Yes.
- American system—Yes.

Initiative of subordinates.
- English system—Yes.
- Prussian system—Yes.
- American system—Yes.

Interference by policy with strategy.
- English system—Yes.
- Prussian system—Yes.
- American system—Yes.

[28] Upton, *The Military Policy of the United States*, p. 233.
[29] *Ibid.*, p. 387.
[30] Letter of Sherman to Grant, May 28, 1865.
[31] Letter of Sherman to Grant, April 10, 1864.
[32] Badeau, *Military History of U. S. Grant*, II, 50.
[33] Von Clausewitz, *On War*, Book I, Chap. 7.

Interference by policy with tactics.

English system—No.
Prussian system—No.
American system—No.

May we not safely say that these common features must be observed in any system for the conduct of representative war that is to be successful?

Von Clausewitz has condensed the distinction between strategy and tactics to an aphorism: "Strategy is the use of battle in war; tactics the use of troops in battle." This terse definition enables us to see at once that tactics is as exclusively a matter for the military as is policy for the statesmen. In a popular government, where the statesman is the superior, a knowledge of tactics on his part is worse than useless. History abundantly proves this: Jefferson Davis' knowledge of tactics defeated the Confederacy; a Secretary of War, who had been a general, was literally run out of office by "a village mob." But the converse does not hold, for the military man, the junior, cannot dangerously interfere in policy. Moreover, a knowledge of policy on his part is invaluable; it is nigh impossible to see how the military heads can properly perform their high duties without a pretty thorough knowledge of the nation's policy. But what of strategy? Strategy is middle ground. The statesman makes war for the very reason that he is forced to the pass where he has no choice but to call strategy to the aid of his policy; the military man uses strategy to assure successful tactics. It follows that the statesman must be able to tell the military head, in a general way, wherein battle will be most advantageous for his policy, and he must, in order to get anywhere, know enough of purely military strategy to present a workable problem. To illustrate the point take a horrible example —Gallipoli. Had the statesman been wise, immediately the great political desirability of the capture of Constantinople seriously struck him, the strategic difficulties would also have come to mind. The statesman would then have realized that the urgent problem, after all, was to bring pressure on Turkey that in turn would relieve pressure on Russia. He could then have presented the problem to his military adviser in a workable aspect. A properly equipped military adviser must have known enough of policy to have realized what was wanted. He could at once have discarded any strategy that would not further the policy. Had each understood the whole field of strategy and insisted that the whole field be mutually covered, could Hindenburg have been so puzzled that the British did not strike at Alexandretta? There must be an overlap in strategy.

In the United States we have ready at hand a triumvirate for the conduct of war: the President, the head of the government, responsible alike for policy and strategy, a responsibility that he cannot shift; the Chief of the General Staff; and the Chief of Naval Operations. Here is the board to conduct war. If it is enlarged, what happens? We get more than one expert in a special branch; we get differences of opinion; we get objections and not expedients; we get a council of war. One poor general is better than two good ones. When does this triumvirate begin to function? Obviously this cannot wait until the formal declaration of war. It should start functioning when the President begins to act as Commander-in-Chief. That moment will probably be when the outlook becomes so gloomy that the President suggests where the ships should be. Then the Chief of Naval Operations should report to the President as his expert naval adviser and the medium to translate and transmit his orders to the Navy under his command.[34]

The danger in the United States is this: We fortunately have long periods of peace and short periods of war. During peace, there being no war to conduct, the service of supply is really all there is, operations being entirely controlled by supply, and not the contrary as is the case in war. As a natural consequence the Secretary of the Navy is, as you might say, complete in his own office; he controls the Navy in every respect. This in turn, through the years, naturally gives rise to the theory that the President has delegated his office of Commander-in-Chief of the Navy to the Secretary of the Navy. The courts have, in effect, so stated. The truth is rather that the President has not delegated his office, but that in time of peace the office lies dor-

[34] ". . . . the war should be conducted as a whole by a single minister . . . . and there should be no intermediary between the strategist and the head of the Government or general director of the war."—Wilkinson, *Government and the War*, p. 228.

mant. When war does come the office awakens. Throughout the preceding years, however, the Secretary of the Navy has been doing all the work of the Navy; the President has grown used to this; he has always dealt with the Navy through the Secretary; unconsciously the Secretary assumes the duties of the Commander-in-Chief of the Navy. One mortal man cannot carry the two duties the Secretary thus undertakes. Churchill tried it in England during the World War. Both of the duties suffer. In war when a duty suffers men die.

For want of a nail an empire was lost. Possibly the missing nail could be found in a Navy Regulation:

> The Chief of Naval Operations will, when directed, report to the President of the United States as his aide in the execution of his duties as Commander-in-Chief of the Navy.

President Coolidge, clearly expressing the conviction of the practical, thinking citizen, has said:

> We want no more war. You men and women who have seen it or have been engaged in it want war least of all. We want peace with justice and with honor. But this does not justify the government in disregarding history, in leaving the people undefended against national peril at home or abroad. Not for defiance, but for defense; not for aggrandizement, but for protection; not as an appeal to force but to insure the administration of justice we need an adequate army and navy. The forces of evil and despotism have ever been gathering. Our safety and security lies in their realization that this nation has such a force and such a spirit that they can attack American rights only at their peril. America represents the greatest treasure that there is on earth, the greatest power that there is to minister to the welfare of mankind; to leave it unprepared and unprotected is not only to disregard the national welfare, but to be no less guilty of a crime against civilization. The day of competitive armaments, we hope, is passing, but we cannot yet see when the day will be past for adequate military preparation.[35]

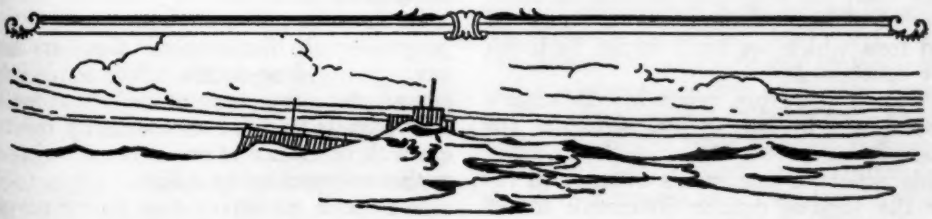
We are in the morrow of a great war. Years will pass; new statesmen will come. Will they realize that:

> In time of war the civilian as much as the soldier is responsible for defeat and disaster. Battles are not lost alone on the field; they may be lost beneath the dome of the capitol, they may be lost in the Cabinet, or they may be lost in the private office of the Secretary of War. Wherever they may be lost, it is the people who suffer and the soldiers who die, with the knowledge and the conviction that our military policy is a crime against life, a crime against property, and a crime against liberty.[36]

Will the statesmen even have thought, amid the pressing problems of years of peace, that material preparation, that command preparation so far as the Army and Navy can carry it, are but the foundation? Will they realize that merely providing for an Army and Navy is not enough to purge of the guilt of a crime against civilization? Will they realize that preparation by the statesman and understanding of the war duties of the various offices of state are vital? That they may not realize all this is our weakest link. The Navy can help to the realization of it, and to that end must work unceasingly.

[35] Address at Northampton, May 30, 1923.—*The Price of Freedom*, p. 347.

[36] Upton, *The Military Policy of the United States*, p. xi.



HONORABLE MENTION, 1927

Cruiser Types

By LIEUTENANT (RETIRED) FRANKLIN G. PERCIVAL, *U. S. Navy*

First secure the victory, then make the most of it.—Nelson

THE leading foreign navies are engaged in building a cruiser of 10,000 tons with approximately thirty-five knots speed, an armament of eight-inch guns and practically no protection. Such a vessel could be utterly destroyed by a single hit from one of her own class. A large ship of this pathetic vulnerability is manifestly an unsound proposition. Is there not some other way of meeting the situation, or of reducing the number of the objectionable class of cruisers which must be built?

An alternative has been offered by Mr. Bywater in the *Scientific American* of November, 1926. In this article, he condemns the treaty cruiser as a "tin-clad suicide ship" and advocates restricting the displacement of *future* non-capital ships to 7,000 tons and their armament to six-inch guns.

This would be to the disadvantage of the United States for the reason that we do not possess outlying bases to enable the smaller cruisers to operate as does Great Britain. Neither have we such short lines of communication to protect as has Japan. In addition to this, we have lagged in the construction of 10,000-ton cruisers. If the restrictions were based on the *status quo*, it would leave us tragically lacking in these powerful ships. Subsequent cruisers of 7,000 tons which we built would be hopelessly outclassed.

We must, therefore, reject Mr. Bywater's proposal and investigate the situation for ourselves.

This article is one man's attempt to review the various cruiser functions, to set forth the type of ship which seems best suited for each of the more important ones and to arrive at a practical solution. The destroyer problem is so interwoven with that of the cruiser that it is necessary to treat certain phases of that as well, but it will be done briefly, without going into detail.

COMMERCE PROTECTION

This is put down as the most important and the only vital cruiser function. The reason for this is that there will always be certain lines of communication which *must* be kept open if the fleet is to operate from an outlying base and if the economic life of the nation is to be maintained. It is apparent that the commander-in-chief cannot commence offensive operations, if he is uncertain as to whether or not his line of supply will be cut. Further, as a nation, we are becoming every year more dependent upon oversea communication for our necessary raw materials.

We are prone to imagine that the next war will be fought under the same conditions which prevailed in the last one. The unique situation in the World War was that England could maintain, in effect, a close blockade of German ports with all the safety of a distant blockade. In addition to this, the Allies' superiority in cruisers was so overwhelming that the few German raiders at large, in August, 1914, were quickly mopped up.

In the first place, we are not so situated geographically that we could deny any other naval power free access to the sea. In the second place, it is very unlikely that we will ever possess so great a superiority in cruisers with reference to any other naval power as that enjoyed by the Allies.

We recall, moreover, that recent developments have added to the effectiveness of the surface raider. The production of planes suitable for carrying on small cruisers has lengthened the range of vision of the corsair and increased the likelihood of her lo-

cating prizes. Further, while the speeds of merchant vessels have remained practically stationary, cruiser speeds have increased. This means that the modern commerce destroyer can quickly overhaul anything sighted. Finally, the advent of the Diesel engine has made it possible to give these vessels a cruising radius previously unheard of.

The knowledge that other powers are building large submarines, capable of warring on commerce in accordance with the treaty, warns us that we must again reckon with these potent weapons in the next war.

Here then, are the facts:

A. We could not deny the corsairs of any nation free access to the sea.

B. Our navy suffers from a chronic shortage of cruisers.

C. The effectiveness of surface raiders has increased.

D. The submarine will probably play a prominent part in commerce destruction in spite of the treaty restrictions.

In the light of our World War experience, is it not clear that we must turn to the convoy system as our only hope? It would be obviously impossible to furnish escorts on all trade routes, but we could put them on the line of supply of the fleet and on those routes over which our vital raw materials are brought. Our fastest and best merchant ships should be used on these lines in order to get the maximum service from our escorting cruisers. Then we could use neutral shipping and transhipment through adjoining neutral countries for the carrying on of other commerce. For less valuable cargoes on trade routes remote from the theater of war, we could send our older and slower vessels without escort on indirect and irregular courses. We would, no doubt, lose some of them, but not enough to make commerce raiding a highly profitable venture or to change the course of the war.

If we agree on the convoy system, what are the requirements for the escorting cruiser?

The enemy raider may be a 10,000-tonner with eight-inch guns. To be invulnerable against such vessels, our escorting cruiser should be of that same displacement, with enough armor to keep eight-inch shells out of her vitals and should carry eight eight-inch guns. She should also have two planes and an adequate anti-aircraft battery—say twelve three-inch A. A. guns and twelve 37 mm. automatic A. A. guns. In addition, six torpedoes should be provided for emergency use. This armament and degree of protection may seem impossible until we recall that a cruiser tied to a merchant convoy need not be fast. Twenty-five knots should give her an ample margin of speed to escort any merchant vessel we now possess. Higher speeds for future commercial shipping do not seem likely, for the simple reason that they do not pay in dollars and cents. We could get twenty-five knots with one-third the power necessary for thirty-five. Not only would we have available for protection this weight saved on machinery, but the smaller power plant would require less space. She would consequently have a smaller vital area to be protected. In addition, the lower speed would call for a shorter, beamier hull with less free-board, cutting down the size of the target presented to either torpedo or gun fire. She would also have a smaller turning circle and be more able to avoid torpedoes by maneuvering. Further, her greater beam would allow better under-water protection and make for a steadier gun platform. Anyone will admit that this escorting cruiser will have no trouble in handling the high speed raider, in fact, she could probably handle two or three of them.

There still remains one danger to be met. The powers have agreed not to use submarines to destroy commerce without stopping and boarding. However, the under-sea boats may still take a shot at the cruiser escort without warning. If they sink her, they can deal with the convoy at leisure. We should guard against this possibility by providing an anti-submarine screen of two or three destroyers for the escorting cruiser. These destroyers would not require extreme speed. Twenty-eight knots should be enough for ordinary purposes. We could remove two boilers from some of our 1250-ton boats and use this space for additional fuel capacity. The after pair of triple torpedo tubes might also be discarded to provide space for additional depth charges and Y-guns. We would then have a specialized craft of long cruising radius, suitable for trans-oceanic convoys, with ample speed for anti-submarine purposes and a formidable array of depth charges and Y-guns. This takes care of the submarine menace, so long as the treaty is lived up to.

The adoption of this method of protecting commerce would have an additional advantage. If we were pitted against an adversary who saw himself losing and decided to adopt unrestricted submarine warfare as a last resort, we would not have to change our organization or methods of protecting commerce. The only difference would be that we should be obliged to supply enough anti-submarine destroyers to screen the entire convoy instead of merely the cruiser escort. The mere fact that we were prepared to deal promptly and effectively with such a reprehensible step on his part would tend to keep a foe in strict adherence to the treaty.

Before leaving the subject of commerce protection, we must consider sending out 10,000-ton high-speed cruisers to run down enemy raiders. Probably this would seldom be practicable. If sent out, they should accomplish more in groups of three or four than a single cruiser in a proportionally longer time.

Lastly, occasions might arise when the entire fleet would be called out to intercept raids in force on the line of supply.

The foregoing is not a perfect solution of the problem of commerce protection, but it provides a means of supplying the fleet and maintaining the economic life of the nation with a minimum number of cruisers.

Scouting

Aerial scouts can probably get any desired information more economically in such weather as they can operate. In doing so, they automatically guard isolated units on the scouting line against the danger of being cut off and destroyed by superior forces. Nevertheless, we must still depend on surface scouts in non-flying weather, or, generally speaking, when low visibility prevails. Then only a small area can be covered by a single vessel. Numbers consequently become of increasing importance. Would we not do well to consider a proposition advanced by Lieutenant Webster in his article "The Cruiser" published in the Proceedings for April, 1926? He points out the possibility of using a number of small cruisers backed up by standard, high-speed, 10,000-ton scouts. Due to the short scouting interval, these small cruisers would be within such distance that they could readily be supported by a larger one in case of contact with superior forces.

Let us estimate the requirements for a small scout. The first consideration will be speed. If we allow her enough to out-run the large thirty-five knot cruiser, we will seriously cut down her cruising radius and the tonnage available for armament. But we must remember that she is unlikely to encounter superior forces except when the visibility is low. This puts a new light on the necessity for speed. Then her ability to reach her support will depend more on how quickly she can work up to her maximum speed than on what that maximum is. In other words, her fate will be sealed within fifteen minutes and possibly within one minute from the instant that she is sighted. She will have disappeared, either in the mist or beneath the waves. The outcome will depend upon the mental alertness and professional capacity of her officers and men and upon the design of her power plant. The relative importance of speed and rate of acceleration was ably discussed by Naval Constructor Gunning in the Proceedings for May, 1926.

If we arm her with six-inch guns she might, under certain conditions, boldly attack her large antagonist with guns and torpedoes, dropping meanwhile a barrage of smoke boxes, behind which she could retreat if she found her shells were incapable of penetrating to the enemy's vitals. Much might be written on the possibilities in low visibility tactics for this type.

If she is obliged to fall back on her support, she must rely for her safety on propulsive machinery that can be accelerated more quickly than that of the larger vessel. She might never have the chance to demonstrate extreme speed in action. We must choose between it and other more important fighting qualities. She should, however, have the same speed as our 10,000-ton scouts so that she will not hamper their movements. Let us fix this tentatively at thirty-two knots.

Speaking of her torpedo armament, we are reminded that this vessel is, in reality, a large destroyer. The destroyers of the scouting fleets of other nations have been growing larger in order to gain the necessary seaworthiness to operate with battle cruisers in all weathers and the necessary cruising radius to carry out their mission. Should we not take the step of combining our small cruisers and large destroyers into one type? The French Navy has already

done this in its *Jaguars*. By adopting the conservative speed of thirty-two knots, we leave far more tonnage available for armament, ammunition, and fuel than is usually the case in a vessel of this class. In fact, it should be practicable to carry at least as many torpedoes, in proportion to size, as are now carried on our 1250-ton boats. This means a minimum of thirty, including spares.

So long as this is an entirely new type in our Navy, ought we not to consider a new major weapon for her—for example a twenty-four inch torpedo with a 1000-pound war head? These might be supplemented by small, short range, cold shot torpedoes as suggested in the PROCEEDINGS last September by Mr. Prendergast in discussing "A Destroyer Leader."

One plane should be carried by this vessel under normal conditions. If, in addition, we provide a battery of four six-inch guns, mounted in twin center-line turrets and twelve 37mm. automatic A. A. guns, we will have a very formidable little craft.

The 37mm. guns would be triple purpose weapons. While primarily for use against aircraft, they should also be very effective against coastal motor boats and for sweeping personnel from the decks and bridges of enemy destroyers at the close ranges of a night attack or even a day destroyer mêlée.

Her depth charge equipment should consist of four charges on hydraulic release chutes at the stern, one loaded Y-gun, and a complete set of reloads carried in the magazines. If we provided enough depth charges and Y-guns to drop a really effective barrage, it would seriously reduce her torpedo armament and entail considerable additional hazard from gunfire. To lay a barrage, we must rely on the specialized anti-submarine destroyer previously described.

Judging from current designs, the foregoing requirements could be met on approximately 3000 tons. Financial considerations demand that their size be kept down to the lowest practicable limit. In connection with finances, we score a very telling point, by making these vessels a combination of small cruiser and scouting fleet destroyer—killing two birds with one stone.

A matter which should receive very careful consideration in this type is living quarters. Her ability to defeat or escape from superior forces will depend largely upon whether or not she sees the larger vessel first, and upon the speed with which her fire-control parties and gun crews function. This calls for mental alertness and quick, accurate thinking by all hands. They will not be alert and clear-headed if they have been living in damp, stuffy, overcrowded quarters. We all glibly quote, "Men fight, not ships." Unfortunately this excellent maxim is not invariably reflected in the design of our combatant vessels. Comfortable, well ventilated living quarters should be considered a military requirement of the first rank. Here again, we profit by accepting the moderate speed of thirty-two knots. Not only will the machinery take up less space, thus leaving more for fuel storage and living quarters, but we will have fewer men in the engineer's force and, consequently, even more room at our disposal. Flag quarters should be provided on all vessels of this type.

We have now outlined a cruiser of approximately 3000 tons displacement, thirty-two knots speed, no protection, four six-inch guns, twelve 37mm. automatic A. A. guns, plenty of ammunition, thirty or more torpedoes and one plane. For the purpose of designation let us call this class the *Destroyer Scout*.

Now we shall consider the requirements of the 10,000-ton scout cruiser: In the first place, she must have a battery of eight-inch guns and sufficient speed to avoid battle cruisers. Due to other urgent requirements, we must set this speed as low as possible, or thirty-two knots. By this is meant an actual maximum, not merely a legend speed of thirty-two knots and a probable maximum of thirty-four. The factor of safety introduced by aerial scouting enables us to reduce her margin of speed more than we otherwise might.

When we come to the problem of protection we remember that at night, or in misty weather, she is apt to make contact with an enemy cruiser at very close quarters. If the enemy cruiser should be of the destroyer scout type, just described, the chances are that the smaller vessel will see the larger one first, man more quickly her lighter guns and get off the first salvo. It would be tragic to have a fine 10,000-ton ship sunk by a vessel of one-third or one-fourth her size. If the large cruiser can be sunk by the guns of the smaller one, the advantage of building the former is greatly diminished. Not only are

many fairly new cruisers armed with the six-inch gun, but it promises to be the weapon for the destroyer scout and flotilla leader types. We should, therefore, put it down as our next requirement that our large scouts should carry enough armor to keep six-inch shells out of their magazines, machinery spaces, eight-inch turrets and barbettes. We must do this, even though it necessitates a reduction in the number of eight-inch guns.

If we cut the number of her main battery guns to six, it would be no appalling sacrifice. A gunnery duel between two treaty cruisers would be decided far more by good shooting and by luck than by the volume of their broadsides. The latter would be of more importance if these ships were capable of enduring a protracted hammering. One does not need a sledge to drive a tack.

This possibility of contact at short range is present whenever the visibility is reduced. It shows clearly the weakness in any plan of protection which does not provide an armor belt. The proposal to build these vessels with only a protective deck would leave their vitals exposed, even to the guns of a destroyer. It would be extremely dangerous to use such a cruiser on the scouting line, to support or break up destroyer attacks, or for night work of any kind. What then would it be good for?

Since our large scouts are very susceptible to under-water attack, it is highly important that they be provided with a powerful battery of three-inch and 37mm. automatic A. A. guns so mounted that they can be used effectively against enemy aircraft, destroyers, or coastal motor boats. An abundant supply of ammunition should be provided as our cruisers will probably be the first ones in contact with the enemy and the last to lose touch. This class should also carry two planes.

She must then be armed with some weapon for use, in an emergency, against the most powerful ship afloat. The only such weapon practicable to install on a 10,000-ton cruiser is the torpedo. Since the requirements are so conflicting for this type, we should reduce the number of torpedoes to a minimum—merely enough to give her a weapon for use in extremity. If we supplied her with six torpedoes, mounted in triple tubes and on tracks so that they could be run to either side of the deck, she would have a fairly formidable torpedo broadside at a cost of approximately one-tenth of one per cent of her displacement.

It is apparent that if she makes contact at short range with a vessel of her own type, her fate will be decided largely by who fires the first salvo. This depends, in turn, on mental alertness. We must, therefore, as in the destroyer scout, take particular pains to see that the living quarters are comfortable and well ventilated. Once more, as with the smaller cruiser, her safety after contact with superior forces will depend more upon the celerity with which she can increase speed than it will upon what speed she can ultimately work up to. That ability would also enable her to prevent inferior forces from escaping. This vital feature of her machinery design deserves much thought.

We now have a vessel of 10,000-tons standard displacement, thirty-two knots speed, enough armor to keep out six-inch shells, twelve each of three-inch and 37mm. A. A. guns, an abundance of ammunition, two planes and as many eight-inch guns as are consistent with the foregoing requirements. Let us label this type the *Scout Cruiser*.

Commerce Destruction

From our study of the protection of commerce, it is apparent that any nation with whom we might be at war, which possesses long and vital lines of communication, will probably adopt the convoy system. Since our commerce destroyers must have fairly high speed, it is clear that even if we build 10,000-ton raiders they could not successfully engage the slow, heavily armored cruiser escort of the convoy. The war on commerce is one branch in which the defense is far stronger than the offense. This shows plainly why we should first insure the safety of our own vital lines of supply, before trying to cut those of the enemy.

We are left with only the possibility of raids in force on our adversary's protected arteries of communication, or of picking up occasional unescorted vessels. The latter could be handled more efficiently by smaller and more numerous raiders.

Would not the destroyer scout, which we have just described, answer the purpose? She has thirty-two knots speed, not enough to outrun the thirty-five knot 10,000-ton cruiser which might be sent in pursuit of her. However, her safety will depend more on constantly changing her hunting grounds,

than it will on her ability to outstrip any vessel sent against her. It will be apparent in the first place, that she could not have the requisite cruising radius, armament or living space if we attempted to give her a speed of thirty-six or thirty-seven knots. Furthermore, she probably could not utilize a speed of more than thirty-two knots in bad weather. In the PROCEEDINGS for September, 1926, Commander Howard demonstrated that the German raiders were run down and destroyed, not by virtue of higher speed, but because of superior information, greater fighting power, sheer luck or overwhelming numbers.

As for the desired operating radius, we might get that by a Diesel cruising engine as described by Captain Dinger in his discussion of a "Destroyer Leader" in the September PROCEEDINGS.

She should have roomy, well ventilated living quarters with space for at least one prize crew. The latter might be taken care of by converting the flag quarters for their use.

If possible, she should carry two planes, not only to assist her in locating prizes, but in avoiding pursuers. The space and weight required for the extra plane might be compensated for by the removal of some torpedo tubes, which she could spare while engaged in commerce raiding. We conclude, therefore, that the destroyer scout, with slight alterations, will make an excellent raider.

Under certain conditions, we might use a division of scout cruisers and two divisions of destroyer scouts or even the entire scouting fleet, for a raid on the enemy's protected lines of communication.

FLEET SCREENING

While the development of aerial scouting somewhat detracts from the importance of this function, it is just as essential as ever in non-flying weather. In addition, there are other duties of the screening cruiser which will be discussed later.

Manifestly, a vessel for this purpose must be invulnerable against the high speed scout, probably a 10,000-tonner with eight-inch guns. This calls for the same qualities as the escorting cruiser. In addition, she must have a battery of several rapid fire guns for dealing with destroyers. We provided for twelve three-inch and another dozen 37mm. A. A. guns on the escorting cruiser. If these were mounted where they would have suitable arcs of fire, they would be very effective against hostile flotillas.

Would twenty-five knots be enough for the screening cruiser?

Since the battle speed of the fleet would probably be twenty knots, this would give the screen a twenty-five per cent superiority in speed which should be sufficient to enable it to gain any desired position with respect to the fleet with reasonable celerity. Although one can imagine situations in which a greater speed could be utilized, its lack would seldom be serious, while the absence of sufficient armament and protection might easily prove fatal.

In this connection, we must consider the possibility of a change in the speed of our next battleships. If we should increase this to twenty-four knots, the battle speed of the fleet would remain as it is until the last of our present capital ships are scrapped, or 1942. That is fifteen years from now, or almost the normal life of a cruiser. Therefore, an increase in the speed of our next battleships would not affect the speed of cruisers built in the next few years. On the other hand, if we gave the big vessels only eighteen knots, the battle speed of the fleet would drop when it was joined by the first slower capital ship in 1935. In that event, we could drop the speed of our screening cruisers to twenty-two knots. This would open up still further possibilities in the way of armament and protection. For example, it would be highly desirable to increase the number of eight-inch guns to twelve, the number of each type of A. A. guns to sixteen, to provide more generous supplies of ammunition and a wider factor of safety in her protection. No doubt, the penetrative qualities of projectiles will continue to improve and if we provide only enough armor to meet present day requirements, our ship will soon be obsolete. On the other hand, by allowing a generous margin of protection, we will have a ship that will still be useful when she is twenty years old. We should, therefore, keep their speed as low as possible.

Would twenty-two knots be enough for the escorting cruiser?

It would be ample for nine convoys out of ten. The tenth could be slowed down without serious consequences.

Let us then set the speed of cruisers to perform the functions of fleet screening,

and the escorting of convoys at four knots above that of our new battleships, but not to exceed twenty-five knots.

When operating as a fleet screen, these vessels could keep at a respectful distance anything except capital ships. In the remote event of their being suddenly confronted by these powerful units, they would quickly fall back on their own battleships. During the air phase of a battle, they might add the volume of their anti-aircraft fire to the defense of carriers or other vessels singled out for special attention by enemy bombers. During the action between the battle fleets they could act as a screen for the protection of carriers against stray enemy cruisers. At the Battle of Jutland, the latter had a way of popping up on most unexpected bearings. A well directed eight-inch salvo could so easily put an end to the activities of a carrier that, during an action, it would seem wise to provide some protection, other than their own batteries, for these valuable and highly vulnerable vessels. In fact, the enemy might consider the destruction of our carriers of sufficient importance to send out a formidable force of cruisers and destroyers with that express mission. Or these cruisers might take up a position well ahead and slightly on the engaged bow of the battleships. Here they could lend a hand in breaking up destroyer or torpedo-plane attacks. The following night, the more of these vessels we had to guard the capital ships against destroyer attacks, the more of our destroyers we could release to attack the enemy. After the battle, we would likely find that we had a number of destroyers, light cruisers and other vessels that must either be towed back to the base or abandoned and sunk. While our screening cruisers would not be ideal as towing vessels, they could do a much better job of it than could the high speed scouts. In short, there would be plenty of use for these screening cruisers at every stage of the game, probably more than any other class of ships.

We now have a type suitable for either fleet screening or the escorting of commerce. In the rest of the article we shall refer to it as the *Armored Cruiser*.

No doubt, someone will object that the armored cruiser we have been urging is merely a revival of the type which was rendered obsolete many years ago by the battle cruiser. Of course, it is only a modern edition of the old armored cruiser. But it is not intended to perform the functions for which that vessel was originally designed. The sphere of usefulness of this modern armored cruiser does not overlap that of the battle cruiser. It does not attempt to compete with the larger vessel. In the normal performance of its duties, it would never engage the battle cruiser or the battleship. In its own sphere of usefulness, it would be more nearly invulnerable than the capital ship is in its sphere. The reason for this is that the normal opponent of the latter is a vessel of equal fighting power, whereas the usual adversary of this armored cruiser is the high speed scout with almost no protection.

In fact, the armored cruiser's margin of superiority over its probable antagonist is so great that we might be tempted, in the interests of economy, to decrease its size. This would be a mistake, since she might be compelled to fight superior numbers. Besides, as previously pointed out, these ships should last at least twenty years. If we build them with barely sufficient protection and armament to meet present day requirements they will soon be obsolete. Another reason for giving them the maximum fighting power is that they might, some day, be obliged to meet cruisers of more than 10,000 tons.

MINE LAYING

A vessel for this duty must be fast. This practically precludes armor.

There are two ways of handling the situation. Either we can have special types for mine laying, or put a few mines on each of our scout cruisers and destroyer scouts. The former would seem to be the sounder policy, since the latter with mines unprotected from gun-fire would constitute too great a hazard. If we designate one or more ships for this express purpose, we can keep them in a protected position until they are needed and then supply them with a suitable escort for the accomplishment of their mission.

Preferably vessels for this duty should be larger than the 1,250-ton destroyers we now employ. On the other hand, the 10,000-ton cruiser is too large and valuable a vessel to risk. How about the destroyer scouts? By stripping them of their torpedoes and tubes, and possibly of their after pair of six-inch guns, we could quickly convert them for mine laying or, in turn, quickly recon-

vert them for their normal purposes. Here we reap another advantage of the moderate speed and large torpedo capacity of this class, since the more torpedoes they carry the more mines can be put on to replace them.

Destroyer Leader

The first requirement to be decided is speed. In this connection we should remember that our newest destroyers are now seven years old and by the time we have any leaders built, they will be ten or eleven years old. Taking the normal life of a destroyer as twelve years, it is apparent that we should fit the speed of our leaders to our next destroyers rather than to our existing flotillas.

We have already outlined the characteristics of the destroyers of the scouting fleet. Only the battle fleet remains to be taken care of. Rough weather speed, cruising radius and six-inch guns are not so important here. Also, their size should be kept within moderate limits, so that they may not be too conspicuous for effective night attacks; 1,500 tons would seem to be a reasonable limit to set on their displacement. However, they should possess a greater fuel and torpedo capacity than our present destroyers. In view of the fact that this type is essentially a mobile platform for the launching of torpedoes, entirely too small a proportion of their tonnage is devoted to this major weapon. Would it not make for a more effective flotilla to reduce the speed to thirty-two knots and devote the weight saved to additional torpedoes, ammunition and fuel? This would be less than 9 per cent reduction in speed, but would permit a substantial increase in their torpedo armament and cruising radius as well as adding to the available living space. In view of the limited portion of the time in mid-ocean when 1,500-ton vessels could be driven at speeds in excess of thirty-two knots and, at the same time, use their guns, it would not be much of a sacrifice. This would make a uniform speed of thirty-two knots for our scout cruisers, destroyer scouts and destroyers—a very desirable state of affairs tactically.

If we accept thirty-two knots for the destroyers of the battle fleet, how about using our destroyer scout type as leaders? They have a large torpedo armament, and ample living quarters. Our destroyer scout differs from the leader advocated by Captain Taussig in the Proceedings of last June in that it has less speed, greater cruising radius, additional living space, more torpedoes and ammunition, fewer depth charges and a more effective anti-aircraft battery. In addition, if we built our destroyer scouts and destroyers with a raised forecastle rather than a flush deck, we would be able to make the silhouette less conspicuous and gain the additional advantage of a lower torpedo firing platform. The jar on a torpedo as it strikes the water, when fired from a height of fifteen feet or more, is bound to increase the possibility of gyro derangements and crooked runs. The advantage of a lower silhouette should be apparent for night destroyer attacks. It would also slightly reduce the size of the target exposed to gunfire.

Does not the foregoing justify us in using our destroyer scout type as flotilla leaders?

Supporting Destroyer Attacks or Counter Attacks and Escorting Light Mine Layers

The degree of protection and powerful secondary batteries provided for our scout cruisers adapt them particularly for operations against destroyers, in contrast to their high speed and unarmored, or over-gunned and under-protected contemporaries. Even if our scouts can have only six eight-inch guns, this would be compensated for by the measure of support they receive from our armored cruisers.

Gun Boat Duty

Our destroyer scout would seem better fitted for this duty than the present gun boats or antiquated cruisers. As pointed out by Lieutenant Webster in the April, 1926, Proceedings, small, high-speed vessels would constitute a distinct asset, if scattered at the outbreak of a war. On the other hand, our present gun boats would be a decided liability. Further, our gun boats do not usually carry enough men to put ashore a landing party of proper size without reënforcement from the fleet or the marine expeditionary force. These destroyer scouts could handle the average situation in the more turbulent republics without assistance.

Fleet Flagship

At present, we have an old armored cruiser performing this duty. She will eventually

wear out and must be replaced. Would not an armored cruiser of the type herein outlined serve admirably as her successor? It would have a reasonable superiority in speed over the battleships and sufficient fighting power to deal with stray enemy cruisers or destroyers.

COASTAL MOTOR BOAT CARRIERS

Coastal motor boat or motor torpedo boats made their début in the World War. Since then, articles have appeared in the *Scientific American* of November, 1920, and *Naval and Military Record* of August 11, 1926, advocating the construction of motor boat carriers. This would enable these boats to be employed in a fleet action in calm weather. They are new weapons of undeniable potentiality, particularly at night or in a fog. Further development of smoke screens will also add to their effectiveness.

Could we not build a division of destroyer scouts leaving off the torpedoes and after guns and equipping them with these motor boats? Each vessel should be able to carry at least six boats and possibly eight or ten. They might be tried out with the fleet and if not considered worth while, the boats, davits, and winches could be removed and the normal armament restored at comparatively slight expense. While this experiment will probably not be practicable until appropriations are more generous, we might utilize the interval to develop a suitable motor boat.

THE SOLUTION

We now have three types of cruisers as follows:

1. *The Destroyer Scout*—small, fast, no protection, heavy torpedo armament, six-inch and 37mm. guns; suitable for scouting, torpedo attacks and counter attacks, escorting light mine layers or motor boat carriers, destroyer leader, or gun boat duty. It could be quickly converted for commerce raiding, mine laying, or carrying motor boats.

2. *The Armored Cruiser*—large, heavily armed, thoroughly protected and of moderate speed; suitable for escorting convoys, fleet screening which includes breaking up enemy destroyer attacks, protecting aircraft carriers during an action, lending a measure of support to our own destroyer attacks as well as keeping enemy light forces at a respectful distance before and after a battle. Lastly, this type should make an excellent fleet flagship.

3. *The Scout Cruiser*—large, fast, heavily armed but scantily protected; suitable for scouting, commerce destruction, hunting enemy raiders, supporting destroyer attacks, breaking up enemy destroyer attacks, escorting light mine layers, or motor boat carriers, screening aircraft carriers during an engagement, or for raids in force on the enemy's protected lines of communication.

On first thought, one might object that the creation of specialized types would seriously decrease their flexibility of employment and organization. However, each class would have one or more functions with the fleet and one or more missions away from that body. For example, when things were quiet, the admiral might detach some of the screening cruisers to escort commerce, while he sent a few destroyer scouts out as corsairs and scout cruisers to hunt for enemy raiders. On the other hand, if he were planning some extensive operations and needed reënforcements, escorting cruisers could be sent to strengthen the screen and all commerce raiders and hunters called in to strengthen the scouting fleet. Greater flexibility of organization or employment could be obtained only at the expense of efficiency.

Now let us consider the case for each of the three cruiser types separately.

The Destroyer Scout justifies its creation as a special class on the following grounds:

A. It takes care of the destroyer problem for the scouting fleet more satisfactorily than any existing types because of its high rough weather speed, its greater torpedo, ammunition and fuel capacity and its powerful battery.

B. By building this class we gain the advantage of numbers because: (a) As a combination of small cruiser and destroyer we can devote to its construction the funds we would otherwise allot to building both types. (b) Due to their small size and moderate speed they will be cheap to build.

C. It not only reduces the number of high speed 10,000-ton scouts that we must build, but gives us a longer scouting line.

D. It differs fundamentally from the other cruiser types.

E. It is capable of performing so many missions both with and away from the fleet, and can quickly be converted for so many

other functions that no objection can be raised against the creation of this special class. In other words, its versatility enables its superior numbers to be used to strengthen any fleet or non-fleet organization.

The Armored Cruiser rests its case for a revival on the following claims:

A. It is a sound, well balanced type differing fundamentally from the poorly balanced scout cruiser.

B. In its own sphere of usefulness, it is more nearly invulnerable than any other class of ship. These superior fighting qualities enable it to strengthen the fleet screen or to afford as much protection to a convoy as two or possibly three scout cruisers.

C. The cost of building and maintaining an armored cruiser would be less than for a scout cruiser.

D. It possesses sufficient versatility of employment not to interfere with flexibility of organization.

E. In any naval war, we would always need protection for our commerce and a fleet screen. The importance of these duties justifies its revival as a distinct class.

The Scout Cruiser is admittedly an unsound type. However, we must have a large, fast, powerfully-gunned vessel to back up the scouting line, to support destroyer attacks and for other functions. We can accept them only as necessary evils. We have, however, greatly reduced the number of them which must be built and diminished the vulnerability and cost of those we cannot avoid building.

This solution has the additional advantage that it is based on the existing treaty. It does not entail the calling of an international conference, the enduring of protracted bickering and delays or the making of disproportionate sacrifices on our part in order to obtain the agreement of all powers represented. This plan requires only the approval of our Navy Department and Congress.

The Final Test

The criterion by which any proposed type stands or falls is its ability to execute its allotted mission in bringing about, not merely the defeat of an enemy, but his utter annihilation. How do our cruisers meet this test?

First, they enable the admiral to undertake a vigorous offensive because: (1) Our armored cruisers protect his line of supply so effectively that he can safely go ahead. (2) The unusual sea-keeping and fighting qualities of our cruisers render them much more suited to an offensive than are their high speed foreign contemporaries. (3) He will have the advantage of numbers because our cruisers of moderate speed are cheaper to build and because we have combined two types.

Then, if the enemy is willing to fight, our longer scouting line and stronger screen give us the best of the approach and the preliminary stage of the battle.

While the result of the main engagement rests largely with the battleships, the superior fighting qualities of our cruisers will enable them to execute the functions previously discussed more efficiently than if we had sacrificed those characteristics to attain extreme speed.

If we gain the initial success, we must attempt to follow it up and utterly destroy the opposing fleet. The night after the battle, our destroyers and destroyer scouts must unceasingly harry the retreating armada. The results they achieve will be decided largely by the following factors:

A. *The relative extent to which the opposing flotillas have been mauled by gun-fire.* This, in turn, would depend partly upon the degree of support our destroyers have received from cruisers in their attacks and counterattacks. Again the value of fighting power rather than high speed for the latter vessels is demonstrated.

B. *The number of destroyers which must be retained to guard the main body.* The unusually powerful secondary and anti-aircraft batteries urged for our larger cruisers would enable them to assume more of the responsibility for the safety of the bigger ships than they could otherwise.

C. *Fuel, ammunition and torpedoes.* In order to be of service, those of our destroyers and destroyer scouts, getting through the main action uninjured, must have not only enough fuel to operate, but enough ammunition and torpedoes remaining to deliver effective attacks. One torpedo now is worth one thousand a week later. The advantage of a large fuel and torpedo capacity becomes more apparent.

D. *Their ability to maintain contact during the night without drawing enemy fire.* The lower silhouettes advocated for each

type would make it easier for them to carry out this difficult mission.

E. *The human element*—the ability of personnel to stand the strain of remaining on duty for protracted periods without serious loss of efficiency. This would depend upon their general health and whether they had entered the fight rested or worn out. In a naval battle, carried to a finish, physical fitness is just as important as it is in a prize fight. This is another reason why comfortable, well ventilated living quarters have been stressed for all classes under discussion.

The next morning, our battle fleet may not be able to get close enough to renew the action, but it can follow along to capture or sink disabled vessels. However, our aircraft carriers should continually launch bombing and torpedo plane attacks, in an effort to cripple additional enemy ships. The ability of our carriers to operate will have been decided largely by the degree of protection they have received from our cruisers. Again we realize the value of the fighting power provided for the latter types. Opportunity should also arise for using our light mine layers, if they have any mines left. More mines! More ammunition! More fuel! More torpedoes! These will be the cries heard in the last phase of the battle. Every hour that we prolong the fighting adds to the enemy's demoralization, decreases his numbers and resistance, and increases our chances of utterly wiping him out. The strength to hit hard and often is necessary to gain the initial decision, but the endurance to keep on hitting is essential to reap to the fullest extent the fruits of victory.

These tactics must be relentlessly and vigorously pursued until the enemy fleet is destroyed or the proximity of his shores necessitates a break. The powerful anti-aircraft batteries and large supplies of ammunition provided for these cruisers would enable them to push on much closer to the enemy base than they would otherwise dare.

The fact that few naval victories have ever been properly followed up is no reason why we should not plan to do so. While it is true that enemy shores have often precluded an extended pursuit, advantage of such limited opportunities as existed have seldom been taken. We must remember that the development of submarines, mines and aircraft, particularly the latter, makes it unlikely that any important naval battle of the future will be fought in the vicinity of the bases of either contestant. No admiral will care to have his opponent receive reenforcements of shore based bombing or torpedo planes. All things considered, the chances for thoroughly exploiting a victory are greater than ever in history. To utilize these opportunities, we need fighting power and endurance, not the ability to show an occasional flashy burst of speed. It all boils down to this,—are we building our ships to make a brave show on paper, or to withstand the punishment inevitably entailed by active service? Is it our aim to win speed contests or to win wars?

CONCLUSION

It is submitted that our future cruisers should fall in the three classes herein advocated because:

A. The three fundamentally differing sets of requirements can be met logically, only with three distinct types.

B. The destroyer scout and armored cruiser justify their existence as additional classes from the standpoint of economy as well as efficiency.

C. The scout cruiser must be accepted as a necessary evil, mitigated by a great reduction in numbers and perceptibly diminished vulnerability and cost.

D. These three cruiser types meet the supreme test of their ability to assist the fleet in annihilating the enemy.

Whither?

Some Aspects of our Present Policy

By Brockholst Livingston

The best of prophets of the future is the past.—Byron

Editor's Note—Submitted in the Prize Essay Contest, 1927. Although not awarded the prize or honorable mention, the article was considered so important by the Board of Control that it was ordered published in the Proceedings.

BACK into the past; from the musty shelves of our libraries; from the written words of our historians, we search for guidance in the future. In our quest we are often too prone to accept the flowery phrases of our country's glorifiers. We rebel at the criticisms of supposedly dull, official reports. "The Unpopular History of the United States," upholds its name. Upton's *Military Policy* is a mass of uninteresting statistics. Admiral Rodman once said: "There are lies, damned lies, and statistics!" Upton's book consists of statistics but they are the illuminated truths upon which our past has been built. From the Revolutionary War to the Civil War, Upton has unfolded the cost to us of our unpreparedness and our *lack* of military policy. ". . . . our final success in each conflict," he wrote, "has so blinded the popular mind, as to induce the belief that as a nation we are invincible." What folly! The past is not a truthful statement of our strength for the wars we have fought have not been the kind by which to judge a nation's resources as a military power. The World War, the only modern war of our existence, gave us the aid of our associates, the Allies. Their aid does not detract one iota from the immense factor our help was to the Allied cause but, in another war, we must not, *could not,* count upon such a barrier while we prepared; while we created our army and built up our naval forces to cope with modern warfare.

The United States cannot build her future naval or military policy on the record of past achievements. All that students of American history should glean from the perusal of its pages is the enormous cost to us of the successes we have attained. Life, property and sacred bonds of family have all been wasted because in peace we failed to follow the teachings of history. Our success has come to us because our national resources as a nation are bountiful. In the future we should not make the error of mistaking resources for strength. What is to be our fate if an enemy attack us before we can turn our resources into arms—before we rebeat the plowshare into the sword?

"The misfortune and vice of our country is to believe ourselves better than other men. . . . ." Rome was master of the world and yet went down in defeat—as all nations must, sooner or later. It is for us to postpone that end as long as it is within our power. The past has seen us arrayed against weaker nations, small, puny countries which did not tax our strength. We went to war with Germany when that nation was already sorely spent. Would that our luck could hold and the future reveal no more arduous task. But unfortunately we may expect to be opposed by one or more major military powers. We shall be forced to make a showing of strength greater than that which confronts us.

The question which is asked is: Whither leads our present policy? It is the purpose of this paper to attempt to answer that query.

Upton's *Military Policy of the United States* deals only with our lack of policy towards the land forces. No book dealing exclusively with our lack of a naval policy has been written although Mahan frequently mentions the subject. The need for a systematic upbuilding of our Army is, nat-

urally, a recognized need, that is, by those who understand the matter. However, the creation of a sane naval policy is a necessity which is even more apparent since we, as students of naval affairs, realize that any menace of such magnitude as might endanger our integrity must arise from the sea. A policy which will give to us the naval power to withstand such an assault is America's most vital need.

Naval policy is but an off-spring of national policy. The former cannot exist unless the latter grants it. The latter, however, cannot *endure* unless it be supported by the former. We, of course, forego consideration of a policy of humility as being outside the pale of our traditional national life.

John Adams called the national defense "one of the cardinal duties of a statesman." He was correct because without defense we cannot, in safety, exist. The frequently used example of China, without military power, being the pawn and shuttlecock of the nations of the world, is one which is as true as Adams' statement. National policy and military power—in our case, naval power—are inseparable. Jefferson, considered by many among the foremost statesmen, failed to understand that his dreams of extending our territory beyond the then existing boundaries could not be brought to realization unless we built and maintained a navy. It is a fundamental principle of national existence that a nation cannot exist in complete freedom unless there is maintained a sufficient force to compel compliance with its policies. No one can deny this tenet. The pacifist or the internationalist may dream of world-wide peace but his schemes are not actions. They are chimeras. Before he can accomplish his end, human nature itself must be transformed. As a result the national policy of a sovereign nation makes provision for a naval policy—definite, or, as in our case, indefinite.

"History," says Upton, "will teach him [the statesman] that peace ends in war and war again in peace." The armed forces bring about peace, as we all know. Of course, we have the "Ford peace ship" endeavors but, to go no further back than 1918, the weight of the American support was the power which turned the German onslaught and produced peace—with victory.

The Secretary of the Navy in 1922 stated:

> In the past the administration and development of the Navy has been hampered by a lack of definitely enunciated policies which could be followed by all concerned. With a view to correcting this condition, and in order to better coördinate the efforts of all persons in the Navy, and of all persons under the authority of the Navy Department in furthering the development, organization, maintenance, training, and operation of the Navy, it was decided to determine upon a proper naval policy for the United States.
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> The task . . . . was assigned to the General Board. . . . . The board submitted a statement of policy, which was approved by the Secretary of the Navy. It is believed that the policies laid down are sound in principle, and will be of great service in directing the efforts of all persons connected with our naval establishment along common lines. It is also hoped that they will be of value to Congress in framing legislation for the Navy, as they indicate the fully considered professional opinion of distinguished naval officers of mature judgment, as well as the opinion of the Secretary of the Navy.

The fundamental policy adopted was: "The Navy of the United States should be maintained in sufficient strength to support its policies and its commerce, and to guard its continental and overseas possessions." The Secretary of the Navy believed "that this policy is sound and not subject to question. It should be true for all times and under all conditions." Naturally a policy which covers every phase of the purpose of sea power must be sound and not subject to question—except by those desirous of depriving us of our just and equitable portion of naval strength.

In order that a basis might be had upon which to build, a general naval policy was stated in the following terms: "To create, maintain, and operate a Navy second to none and in conformity with the ratios for capital ships established by the treaty for limitation of naval armaments." This policy also guarantees to us a *paper* strength equal to the tasks which may be required of the Navy.

The Secretary of the Navy in closing his remarks on naval policy said: "The above policies indicate, in the opinion of the present Secretary (Denby), the lines along which the Navy should be administered and developed. He believes that a consistent adherence to them on the part of the personnel of the naval service, the government, and the people of the United States will be of great and permanent benefit to the country.

This policy should be accomplished as soon as consistent with our economic situation."

The naval policy of the United States is indeed but a "statement of policy." As is usual with our form of government, the executive policy is naught without legislative sanction. The General Board might just as well have stated a policy giving us a Navy equal to the combined navies of the rest of the world. Its execution would have been almost as possible under existing handicaps.

These handicaps of which we speak are many and until they are eliminated we cannot expect the authorization and following that, the appropriations, to carry our stated naval policy into effect. First among these drawbacks is the disposition, as Upton has written, "only too prevalent among many of our public men to ignore in the management of military and naval affairs the opinion and advice of professional experts." Is not the fact that the aircraft strength of the Army and Navy has been increased at the expense of the other arms, proof of this? Against the advice of experts this has been accomplished and even now threatens to further weaken the older, we may even say, more powerful, branches of the services. Whither leads our policy in this respect? It can only lead us to a position of inferiority. And this in the face of repeated assertions that any increase of the air forces should be *supplemental* to the then existing land and sea strength. It is plainly seen that if there be added to an existing force, a new power which neither replaces nor increases an already existent power, that new power must be additional to that on hand, if the proper balance is to be maintained. The active policy of the present administration is in violation of this rule.

It is doubtful whether any civilian can compete with a trained naval or army officer in the field of the latter's profession. Constant contact with one's occupation is what makes the individual perfect. Consequently, while the civilian student of naval affairs may be an exceedingly useful aid, he is not as capable of dictating naval policy as is the naval officer himself. We welcome "President Wilson as a strategist," and "Lincoln, the amateur strategist," but we know that they must remain "amateur." Their views may naturally be expressed; their suggestions may even be acted upon, but their personal ideas should not and must not be accepted as policy. This rule should remain so long as this nation continues to be administered by a civil officer.

"The national defense is one of the cardinal duties of a statesman" and its study must be undertaken if a proper appreciation of it is to be had. Mahan said: "Naval strategy . . . . has an interest and value for all citizens of a free country, but especially for those who are charged with its foreign and military relations." The civilian's part ends, however, in supporting the policy decided upon by professional experts.

Naval policy and, indeed, any policy, is impossible of accomplishment unless sufficient appropriations are provided. This fact is not one peculiar to the United States alone for all nations encounter the same difficulties in carrying out their plans. However, it appears that our existing laws are more encumbering than those of many other nations. We are also burdened with a number of apparently superabundant offices through which our requests for funds must pass—each cutting to what the directing officer considers the proper amount; rarely adding to the figures decided upon by competent, professional experts to whom the matter is clear.

Let us follow a departmental request for, as an example, a new cruiser: The preliminary designs and estimates are prepared in the various offices of the Navy Department where each consideration adds to the end in view. Here there is no duplication of effort although we are accused of such. After acceptance by the Secretary, approval is requested from the director of the budget. He refers it to the President in order that it may not be in conflict with the latter's economic or financial policy. If approved, it then is sent to Congress where it may, with luck, be considered simultaneously by the naval committees of both houses. After usually a lengthy debate in committee a bill is presented to the lower house and may be passed. If it is so favored it goes to the Senate and the process is repeated, probably some trifle being changed which sends it back to the lower house and even may call for a joint-committee. Eventually, however, as we considered our bill a worthy one, it is passed and sent to the President who signs it. Our cruiser is *authorized*. The bill carried no funds for beginning construction; that must be a supplementary bill. The entire procedure must now be repeated and, as our bills are often passed just as Congress

is about to adjourn, the appropriation must wait for a new session—possibly nine months later. All this time our fleet awaits the cruiser which, from reports, is badly needed.

In the matter of obtaining the appropriations with which to begin construction of the vessel already authorized, the ordeal is even more trying. Although Congress is empowered, we might even say, directed, "to provide and maintain a navy," we now find a new item which stands in the way of speedy—and sufficient—appropriations. The budget, as now administered, but not as originally planned by Congress, acts as an inefficient brake on the expenditure of money for the naval establishment. As originally conceived the budget was designed to better coördinate the expenditures of the government. It has now become a dictatorial power! A service paper recently stated: "Members of Congress point out that it was never intended to prevent the execution of the will of Congress, nor was it intended to set up an officer superior even to the heads of departments. Yet it is insisted that is how the law is working out." (*Army and Navy Journal,* December 4, 1926.) Instead of Congress, alone, being empowered to levy taxes and provide a navy, a new power has arisen which, under executive authority, maintains a strangle-hold on the legislative body. The power granted Congress of overriding the President's veto seems to furnish the only means of overcoming this encumbrance if the office is retained as at present constituted.

Naval policy cannot become operative unless sufficient appropriations are granted. It appears exceedingly doubtful that those appropriations will be granted so long as there are so many restrictive powers concerned in the fiscal affairs of this nation. We must now not only convince Congress of our needs but must have already shown good cause before the budgetary officials and the Chief Executive himself. The task is a titanic one as the lack of beneficial results will prove.

Our present policy which authorizes and yet does not appropriate funds to begin the construction allowed under the authorization, gives to the world a false impression of our strength. We repeatedly see mention of our twelve destroyers "under construction" and only those who delve further know that no funds are available for even laying the keels or drawing the plans. The authorization of eight cruisers in 1924 did not place those vessels on the operating list of the Navy. At this moment, over two years after the bill was passed, no funds are available for three of them, but a paltry sum for three others while two only have been laid down. And yet, we are credited with eighteen modern cruisers! This is not the way of other nations. Why should it be ours? With our efficiency and our fabled lack of duplication—especially of effort—surely this error should be corrected. Unless specifically stated, authorization of new vessels should automatically provide funds for at least the first year's work. In the case of a building program spread over a period of years, such as the 1916 program, the funds for each year should be guaranteed. Under the Constitution, funds for the Navy may be appropriated covering any number of years. We are not restricted, as is the Army, to a two-year appropriation. Until our naval policy is continuous, its execution guaranteed by successive Congresses and administrations, we cannot expect to have a sea force properly organized and equipped.

Winston Churchill in a speech at the London Opera House, September 11, 1924, used the following words: "The Navy has been under every government and during all periods of modern history the darling of the British nation. On it have been lavished whatever public funds were necessary, and to its efficiency has been devoted the unceasing care and thought of *successive administrations* [italics are author's]. The result is that when the need came, the Navy was *absolutely ready,* and, as far as we can see from what has happened, thoroughly adequate to the tasks which were required from it." Can we say the same of our "successive administrations"? Today, as in every period of our history, the military and naval establishments are the butts of all political bickerings. Because the Navy was "absolutely ready" was not a result of having had lavished on it "whatever public funds were necessary" but because that great factor of life, luck, was in our favor!

A naval policy *founded on the will of Congress* is a vital need of the United States. Until the time when such a policy is in being we may expect to continue in the haphazard manner which has been typical of our past naval existence.

There are certain other considerations which must be undertaken in order to answer the question: Whither? One of those is in connection with our present construction. It requires only a simple arithmetical problem to demonstrate that unless drastic steps are taken to increase the annual new construction, the Navy will, in a definite number of years, be deprived of its backbone—ships. As an example: We have at present (January 1, 1927), nineteen cruisers and light cruisers of varying ages over that proposed at the Washington Conference as the replacement age of this type. To counterbalance this loss we have eight new cruisers authorized but funds for only five appropriated. President Coolidge in his budget message for the fiscal year 1928 stated concerning the three unappropriated for:

> While on the subject of our national defense it is proper to state that no provision is made in the estimates for the Navy Department for commencing the construction of the remaining three of the eight light cruisers which the act of December 18, 1924, authorizes to be undertaken prior to July 1, 1927. This country is now engaged in negotiations to broaden our existing treaties with the great powers which deal with the elimination of competition in naval armaments. I feel that it would be unfortunate at this time to commence the construction of these three cruisers. Rather do I recommend to the Congress the enactment of legislation which will extend the time for beginning their construction.

The members of the Naval Institute are aware of the "competition" of which the President speaks. It is needless to quote figures on the one-sided state of this competition. There is but one answer to our question, Whither? It is that a continuance of the present policy of our executive branch of government leads us to a complete withdrawal from the great naval powers of the world!

Representative Britten of the House Naval Committee said recently at a committee meeting: ". . . . the director of the budget . . . . poses as knowing more about the Navy Department than the specialists who are trained at our national academies. It appears that he directs our national defense. I want the press and the country to know that he is jeopardizing our national defense." (New York *Herald-Tribune*, December 9, 1926.) Another "poses as knowing more about the Navy Department than the specialists" when he advises that the construction of the two rigid airships be held in abeyance until the completion of the "all metal airship," constructed "for experimental purposes, to determine by practicable demonstration the type of construction and character of material to govern in the future in the making of lighter-than-air craft." He further states that "it is thought the better part of wisdom to wait upon this determination, even though it may be found necessary to ask for an extension of the time limit placed on the initiation of work on one of the ships." Our national policy seems to have reverted to the ridiculed "watchful waiting."

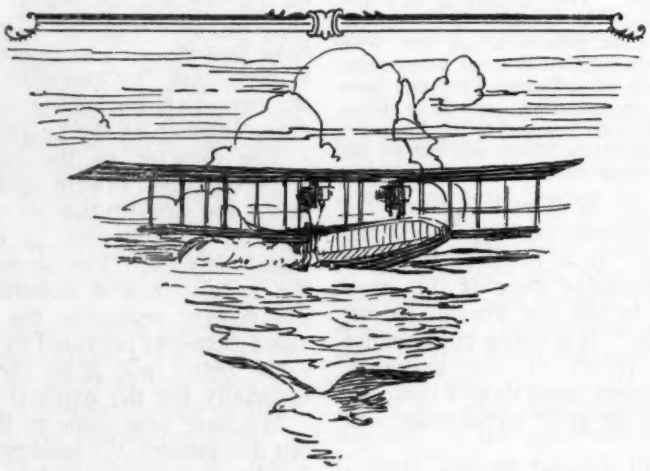
Although Mahan, in whom we must have greater confidence than in these newly arisen "naval experts," said: ". . . . there do arise disputes where agreement cannot be reached, and where the appeal must be made to force, that final factor which underlies the security of civil society even more than it affects the relations of states," we, today, find ourselves faced with the dilemma of continuing to confide the power to provide for the national defense in one, to whom the framers of the Constitution denied that power, and expressly provided that "The Congress shall have power . . . . to provide and maintain a navy," not "by and with the consent of" the executive, but acting alone as the body representative of the people.

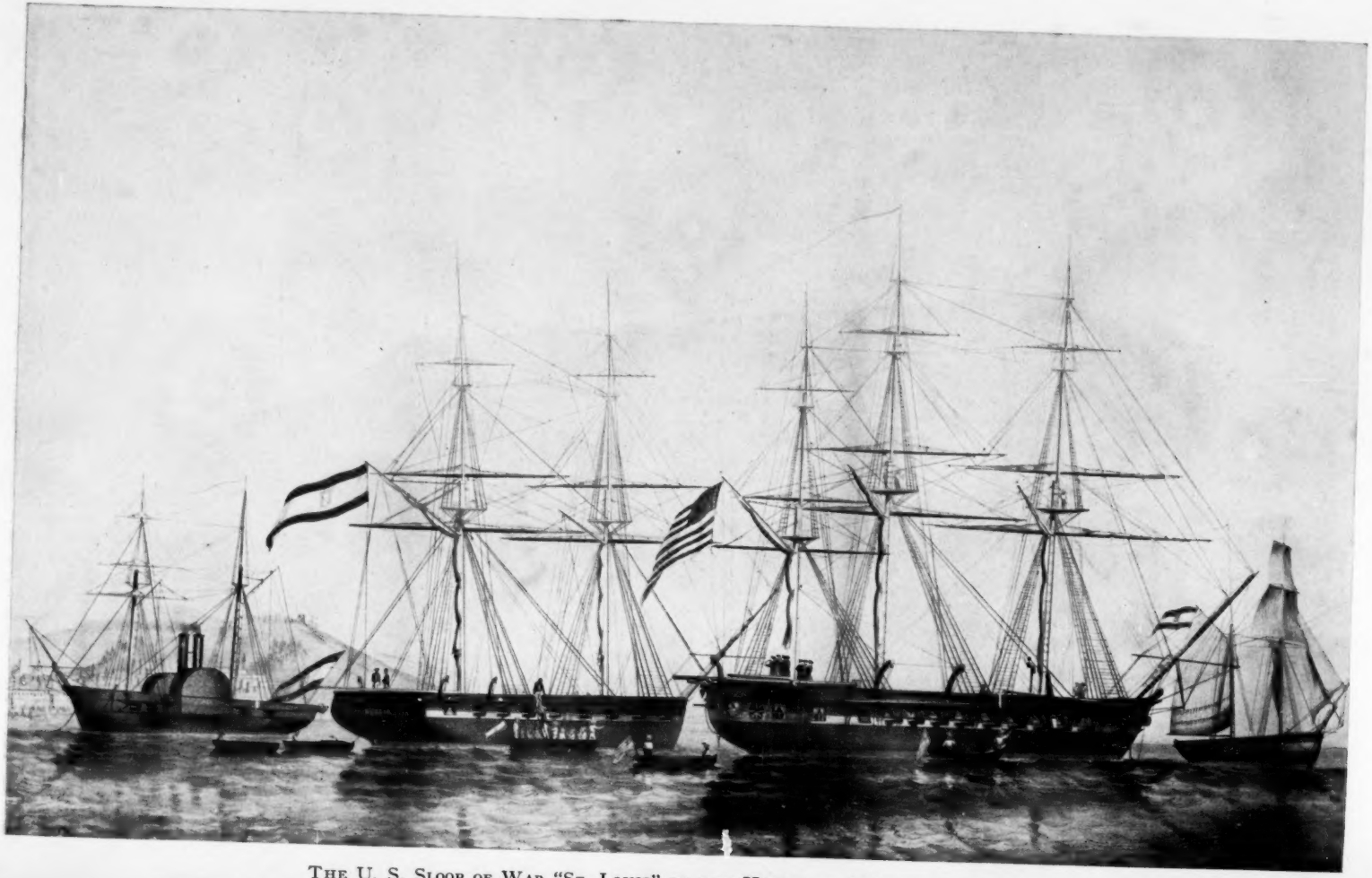
The director of the budget, of whom Representative Britten spoke, has no right under the Constitution or under any power granted by Congress, to regulate the national defense. The sooner the duties of the legislative and executive branches of government recognize the void which divides them—as provided by the Constitution—the better will it be for the nation but especially for the national defense.

We have now come to the conclusion of our discussion. We have reviewed the many handicaps to a successful execution of the naval policy which the General Board stated in 1922. On top of these facts we have a certain disregard of the events of history which must repeat themselves if our course continues as at present. Our President has said: "If our country wishes to compete with others, let it not be in the support of armaments, but in the making of a beautiful capital city." Must we disregard our defenses in the interest of art? Have we forgotten when the streets of our capital city resounded to the tread of an invading army? Has the sight of a conquered and *burning*

capital city been obliterated from our memory? The fruits of pacifism and a lack of interest in our national defense must be the same today as they were that morning in 1814 when Cockburn and his torch-bearers set foot in our rising capital.

Our present course must tempt some nation to repeat the destruction of 1814. And, as at present constituted, our naval policy, being but a statement of policy, has not provided us with the power to hinder an enemy from carrying out his purpose. Because our statesmen do not consider the national defense one of their cardinal duties; because new powers have arisen to dictate our naval policy; and because we disregard the teachings of history, failing to see that "the best of prophets of the future is the past," we are rapidly being carried towards the climax of our existence; from the pinnacle of that of ancient Greece to the ignominious place of an inferior power. The answer to our question is not "Onward," but, "Back from whence we have come!"





THE U. S. SLOOP OF WAR "ST. LOUIS" IN THE HARBOR OF SMYRNA, JULY 2, 1853.
Commander Duncan N. Ingraham demanding the release of Martin Koszta from the Austrian Brig of War *Hussar*.

To Commander Duncan N. Ingraham this picture is most respectfully dedicated

A Personal Narrative *of the* Koszta Affair

By COMMANDER R. C. PARKER, *U. S. Navy*

EDITOR'S NOTE—See discussion, page 335 this issue.

ONE of the writer's earliest memories is of a long hall hung with old time ship pictures, among which was a particularly bold lithograph labelled "The U. S. Sloop of War *St. Louis* in the Harbor of Smyrna, July 2, 1853," with the sub-title "Commander Duncan N. Ingraham demanding the release of Martin Koszta from the Austrian Brig of War *Hussar*."

The artist was evidently more noted for conscientious attention to detail than for a very intimate acquaintance with naval architecture or a too slavish adherence to the laws of perspective. Not for him were any of the tricks of the modernist school, whereby so much is left to the imagination and so little actually done by the artist; his job was to get into the picture everything that belonged there, and in this he has succeeded admirably.

True, the bows of his ships are of the dish-pan variety, and there is a certain stiffness and formality in his treatment that is faintly reminiscent of the toy Noah's arks of our childhood. Nevertheless he did not miss a trick; every spar, shroud, and stay is there, and his fidelity to the actual facts becomes more apparent when we study the incident on which the picture was based.

This incident is described in the *Elements of International Law,* by G. B. Davis, and is quoted as follows:

> Koszta was a Hungarian, and so a natural born citizen of Austria. He was concerned in the revolutionary outbreak of 1848, and at the unsuccessful termination of that movement effected his escape to Turkey, where he was arrested and imprisoned, but finally released on condition that he should quit Turkish territory. He went to the United States, took up a residence there, and at the proper time made a declaration in due form of his intention to become an American citizen.
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> In 1853, and so before the naturalization process had been completed in his case, he went to Smyrna on business, and was there granted a traveling pass by the United States consul. This paper conferred upon him, to a certain extent, the national character of an American, and stated that he was entitled to American protection.
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> Not long after his arrival in Smyrna his presence was made known to the Austrian consul, and on June 21, 1853, Koszta was seized by certain persons in the pay of the Austrian consulate and taken out into the harbor in a boat. At some distance from the shore he was thrown into the water, and was picked up by boats from the Austrian man-of-war *Hussar.* He was taken on board that ship and was there confined with a view to his ultimate conveyance within Austrian jurisdiction.
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> The United States consul at Smyrna protested against this arbitrary action, but without avail, and as a last resort, reported the circumstance to the American Legation at Constantinople. The *St. Louis,* a public armed vessel of the United States, commanded by Captain Ingraham, happened to be lying in the harbor of Constantinople at the time, and Captain Ingraham was requested by the *Chargé d'Affaires* to proceed to Smyrna and demand Koszta's release, if necessary by a resort to force. In compliance with these instructions Captain Ingraham went to Smyrna and demanded the surrender of Koszta, stating that unless he were delivered up he should take him by force of arms.
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> As such a conflict, aside from its international consequences, would have led to the certain destruction of much of the shipping in the harbor and to possible destruction of the town itself, the French consul offered his mediation, and Koszta was delivered into his custody pending the result of the negotiations in his case. As a result Koszta was conveyed back to the United States, the Austrian government reserving the right to proceed against him should he ever return to Turkish territory.

The foregoing covers the mere outstanding facts from a legal standpoint. A more colorful account came to light recently when a musty volume, about to be thrown into the bonfire, turned out to be an intimate diary kept on board the *St. Louis* in 1852-54 by Passed Midshipman (afterwards Rear Admiral) Ralph Chandler, U.S.N., who brought the picture home from the Mediterranean. The style is somewhat sententious and flowery, as was the habit of the 1850's, but the prompt line on the pretty girls of a new port would do credit to the leading sheiks of any modern J. O. mess.

THE U. S. SLOOP OF WAR "ST. LOUIS" IN THE HARBOR OF SMYRNA, JULY 2, 1853.
Commander Duncan N. Ingraham demanding the release of Martin Koszta from the Austrian Brig of War *Hussar.*
To Commander Duncan N. Ingraham this picture is most respectfully dedicated

His story runs:

"On the twentieth of June our canvas wings were loosed to the breeze and we glided from the little harbor of Piraeus and soon lost sight of the city, venerable Acropolis and all, and steered away for Smyrna. On the twenty-second or twenty-third we were beating up the gulf, and early on the morning of the twenty-fourth let go the anchor in Smyrna harbor.

"When one sees one Turkish city he has seen them all, and to me there is a sameness about the mosques and minarets, the burial grounds among the trees, and even among the Turks themselves. Smyrna may be an exception for there are many Franks there and in their quarter of the city it looks quite homelike.

"The first news that greeted our ears on arrival was a description of the horrible and barbarous manner in which the Austrian consul, assisted by the brig-of-war *Hussar*, had treated one Martin Koszta, a Hungarian. Even the pretty girls were full of indignation and vowed vengeance against the Austrian officers, and refused to have anything to do with them; and their sweet faces would at once assume an angry cast when the subject was mentioned. The facts of the case were laid before the captain and in substance were as follows:

"Martin Koszta was one of the refugees that went to America with Kossuth, and while there filed a Declaration of Intention to become a citizen of the United States, and soon after left and came to Smyrna. Our consul refused to take him under protection as an American citizen, and for a few months he lived very quietly without being under the protection of any flag.

"One evening while he was at one of the coffee houses where he usually spent his evenings smoking his pipe—but a short description of the coffee house is necessary: It was partly supported by spiles driven into the ground and the larger portion of the building projected over the bay with a railing around it, and chairs and tables so placed that one might enjoy the cool breeze and take his coffee in the open air.

"While he was thus engaged at dusk one evening he was forcibly seized and thrown over the railing and then dragged some yards by a boat that was in waiting, sometimes under water and sometimes not, until the scoundrels thought themselves far enough from shore. They then took him into the boat and carried him to the *Hussar* where he was confined in chains on the lower deck. The brutal manner in which he was treated, together with his intention to become an American citizen, influenced Captain Ingraham to act as he subsequently did.

"On our arrival, after the consul had seen the captain, a committee of citizens consisting of many English and Americans came on board to beg the interference of Captain Ingraham in behalf of the unfortunate Koszta, but the case was so singular a one that the captain could not take any immediate steps in reference to it, but at once wrote to the minister at Constantinople. The minister proper was absent but Mr. Brown, the dragoman, was acting, and after two statements of the affair from Captain Ingraham his advice was to take the unfortunate prisoner at all hazards.

"On July 2, a day I shall long remember, before breakfast the captain went on board the *Hussar* and demanded to see Koszta, but was told by the executive officer (the captain being on shore) that no such person was on board the brig. The contrary we knew, and therefore the captain informed the captain of the *Hussar* both verbally and in writing, that if Koszta was not delivered up by twelve meridian (it was then about 8:00 A.M.) he would take him by force. To which the Austrian captain replied, 'I am a soldier, sir, as well as a sailor, and will obey the orders of my superior, the consul, come what may.'

"When Captain Ingraham came back and told what he had done there was no surprise expressed, but we all saw that unless the man was given up there would be bloodshed, and every man on board seemed anxious for a fight. The time was put off until 4:00 P.M. for his delivery into our hands and we had ample opportunity to get ready for action.

"The Austrian force consisted of the brig *Hussar* of sixteen guns, the schooner *Artemisia* of twelve guns and a steamer of four guns. None of the guns of the Austrians were of as large calibre as ours, but their number exceeded ours by twelve guns. If that excess were all in one battery,—for instance, if it were one thirty-two gun ship instead of the three separate ones we were to contend against, our chance would of course be much better for we could always avoid a raking fire, and would not be obliged to fight both batteries at one time. In the

other case one vessel might be on each side of us and another ahead or astern, and in either position we would be exposed to a raking fire. It was evident that in the case before us our plan of tactics was to get underway and fight at a long range until one or more of our opponents were disabled; and that being accomplished, we were certain of victory.

"This was the plan Captain Ingraham adopted and intended to put in force. Slip ropes were got on the chain ready to cast off at any moment from the anchor, the men were called to quarters, shot and shell passed up to the guns, and everything soon assumed a warlike aspect. Before all this was effected, however, we left our old berth and stood closer in just ahead of the *Hussar* and came to again within less than half a cable's length from that vessel, and only veered to twelve fathoms of chain, so that the fifteen-fathom shackle would be near at hand to slip with.

"The schooner, as soon as she was informed of our captain's demand, weighed her anchor and stood off and on across our bows for the rest of the day, and the steamer got up steam ready to tow either of the other vessels into position. No one can doubt that these were all hostile maneuvers and tended to show that resistance would be shown to the last.

"Our guns were loaded each with a round shot and a shell, the men armed with cutlasses and pistols, and the ship put in readiness for an action. Bulkheads were knocked down, yards slung, and rigging snaked down, and the array of amputating instruments that were displayed on the steerage table by the doctors was enough to chill ones blood. We were all in a great state of excitement, but not an expression of fear or regret did I hear, and I believe our officers and men would have fought the most desperate fight yet recorded.

"The people on shore heard of our intention and it produced much consternation among them as they had fears of our firing by chance into the town, and many of those men who were loudest in their advice to capture Koszta, now thought better of it and would rather a little diplomacy and forbearance were exercised. But it could not be. Either Koszta must be delivered into our hands or we would take him, and so matters stood at half past three when an express came from the shore stating that the Austrian consul had thought better of the matter and would negotiate. Agreements were therefore entered into that Koszta should be delivered over to the French consul to be treated as a prisoner at large until the actions of the separate governments be known.

"He was taken on shore, our boat following to see that everything was conducted properly, and so ended the Koszta excitement. It created at the time quite a sensation both at home and throughout Europe and became the by-word, and everyone applauded Captain Ingraham for his decisive action on that occasion. We were all certain of victory in case it came to blows, but many a gallant life would have been sacrificed, and many a family at home plunged into mourning for a beloved son or husband!"

These accounts tally fairly well, though there are some discrepancies. The diary shows that the *St. Louis* had been some time at Piraeus and left there on June 20, while the account quoted from *Elements of International Law* states that Koszta was abducted on June 21. It would appear therefore that the *St. Louis* just happened in to Smyrna at the crucial moment instead of having been sent there on purpose.

It is probable that the American consul at Smyrna did give Koszta a traveling pass or paper of some sort, for if he had refused him all protection as stated in the diary, he could not logically have interested himself later when the man was seized. He probably had little idea himself as to just how much protection a half-naturalized American was entitled.

The first account states that two boats were used in the abduction while the diary mentions only one. It is likely that he was taken out into the harbor in one boat by longshore thugs in the pay of the Austrian consul, and thrown overboard to be picked up by a boat from the *Hussar*. This would give the Austrians a chance to claim that he had been merely found and picked up instead of having been forcibly abducted.

It is an interesting speculation as to what would have happened had the Austrians stood their ground and kept Koszta. Captain Ingraham evidently meant business, though presumably hoping that his hand would not be called. The forces were not too unequal, considering the heavier guns of the *St. Louis;* and if the Austrians showed the same fighting spirit that they later displayed

under Tegetthoff at Lissa, there would have been as hot a fight as one could desire.

But the real battle would undoubtedly have come later, on the diplomatic game board, in trying to decide how far two wrongs go towards making a right. For while the seizure of Koszta was wholly illegal, it was more so through its violation of Turkish territory than from the shadowy character of his American citizenship; and on the same grounds the use of force by Captain Ingraham would have done equal damage to Turkish pride and considerably more to their harbor.

Probably in this, as in most other decisions that the captain of a naval vessel has to make, he was right so long as he got away with it!

The reason that such a promising *casus belli* passed off, with nothing more serious than indignation all around, is obvious. Austria and the United States had no conflicting interests nor indeed, any points of contact at all; there was no stage on which to produce a war even had they so desired. But had either one possessed an outlying colony to be seized as balm for wounded dignity, there might have been a different tale to tell.

The picture of this affair was apparently made in Genoa in 1854 and brought home on the *St. Louis*. A replica of it hangs in India House, New York City.

The Officer *and the* Division

By Lieutenant Commander John B. Ewald, (*SC*) *U. S. Navy*

THE success of a division on board ship and the success of the division officer depend on the relations between the enlisted men who compose the division, on one hand, and the division officer himself, on the other. The capacity of the officer is, in a very great measure, reflected in the accomplishments of his division and his incapacity is quite often discovered by its failures.

The relations between an officer and his men and the rules which should govern these relations have been the subject of a good deal of discussion for many years. Much pertaining to the subject has been written, somewhat less, perhaps, has been read, yet it remains a matter of such great importance that even those who know little about it may be permitted to state their opinions. Some good may come of it.

This discussion, coming within the above description, as it does, is written from the standpoint of a supply officer aboard ship, and, while having chiefly in mind the character of work done by a supply division, may contain points which are of equal concern to other divisions.

The duties of the supply division are as varied in character as the duties of any other division. The wide divergence in the nature of these duties results, finally, in distinct characteristics in the groups of individuals by whom the duties are performed. This condition presents difficulties in administration and discipline which are not met with in some divisions. Furthermore the groups are scattered about in almost every conceivable part of the ship—in the galley, the bake shop, the ship's store, the clothing issuing room, the offices, the paint locker and in a score or more storerooms and compartments from the gun deck to the hold. The only time the division officer has a chance to look over all of his division is at quarters.

And again, there is, perhaps, less of a difference between the duties of the supply division in time of peace and in time of war than will be found in the duties of any other group on board ship. The men are always working under war conditions and are always working against time. A drill *may* be postponed from one day to another; the ship *can* be painted next week if more important work interferes; but the pay accounts must be complete to date and dinner cannot be put off till tomorrow.

The men who are to carry on the work of the supply division must be hand picked. The average enlisted man will not answer the purpose. If the division officer or the head of the department does not keep a weather eye on the quality of his personnel it is not likely that any one else will, and he will finally wake up to the fact that he has under his wing the riff-raff of the ship. Then will come complaints that the beans are not done, the canteen has no soap, men can't get a full bag of clothes, the engineer has used up the last of the hand hole gaskets and the statement of differences which comes along in about six months will look like the court record of a not guilty murder case. As Frank Bacon said "things will go on like this for a while and then get worse."

In the galley and bake shop forces there must be men scrupulous in their personal cleanliness, free from diseases, careful and accurate in their work, and ready to turn out and to turn to at three-thirty in the morning. The ship's store, clothing, pay office and supply office storekeepers must be straightforward, willing, clear-eyed and energetic and, what is more, they should have more than a primary school education. The men below decks in the storerooms should have those qualities which keep them at work and interested in their jobs when there can be only intermittent actual supervision and there are many incentives to loaf. There is no room in the division for men who do not fill these requirements.

It is scarcely possible for every man to have a high school education or even to

have completed the grammar school, but men with good educational records may be obtained and the division officer is the one to see that his division gets its share of such men.

A method of getting the best results from the division will be outlined. The success of the method depends on a number of things but the most important is that the officer must be willing and sufficiently interested to devote the necessary amount of time towards its accomplishment. It also depends to a considerable extent on a fairly good sense of justice which works for square dealing with his men.

When an officer goes aboard ship he goes to his division as a stranger. His first duty is to become acquainted with the men, and this acquaintance is not sufficient until he has learned all their names and can use their names in speaking to them. The fact that an officer can call his men by name is the best kind of an indication of interest on his part and gives a man to understand that he has a personality which good or bad conduct will directly affect. He is no longer simply a thing but is now hooked up with his enlistment record and on his record depends the amount of money he is going to draw down and the kind of uniform he is going to wear. The second class petty officer probably has a sense of greater superiority over a third class petty officer than might be found to exist between any two commissioned grades. The desire for that superiority controls his actions and makes his record.

This matter of knowing a man by name has been dealt with in almost every paper on this subject and it is agreed to be important, but there are many cases on every ship where men are unknown to the officers who should know them. A man has a name to distinguish him from other men who are pretty much like him and if his name is not known then the prospect of his being distinguished individually from other men is not so good. In an article published a couple of years ago, in the PROCEEDINGS, I believe, the writer made reference to the habit some officers had of saying "Hi, You" or "Hey, Lad," when he wanted to get the attention of a man. That form of address must sound about as pleasant to the man as the word "mister" when used with that peculiar emphasis employed by an upperclassman in addressing a plebe at the Naval Academy.

A man whose name is unknown to his division officer will wonder whether the quarterly marks he is awarded belong to him or to someone else. If the marking is left to the chief storekeeper, the commissary steward or boatswain's mate then the man will pay his obedience to them and not to the officer.

After becoming acquainted with his division the officer will find that there are weak spots in his personnel. Men are trying to do work for which they are not fitted and to which they are not adaptable. There are some who are unwilling, some who are careless and some who are shirking. There are others who are dissatisfied and, what is bad, some of these are talking about it. Replacements are necessary.

Replacements may be made by new men or by trading between divisions. A man who dislikes his work in the pay office may make a success in a turret. However, trading between divisions has dangers which should be avoided if possible. An offer to trade should be examined with care as there is probably something wrong with the record of a man a division doesn't want. There is no better way to make a collection of undesirables. Recruiting from drafts received on board is an operation of less danger.

When a draft comes aboard it is usually known to division officers. The division officer should go up to the gangway and look over the men received. Part of the draft may be rejected at once on appearance but the names should be learned of those who are of good appearance and have good facial characteristics. Their records should be examined and in case any are acceptable a selection should be made based on education, previous occupation, and conduct. The executive officer may fill the vacancies in the division from the list selected.

In connection with this point a division on one of our battleships may be cited, in which the personnel of sixty-four men contained one college graduate, three men with one to three years in college, two high school graduates, eight men with high school records other than graduates and eleven who had completed the grammar school course. It is not intended to convey the impression that all of the best men should be obtained to the detriment of other divisions and it is not at all likely they could be had,

but requests for replacements should be made and the decision will rest with the executive officer by whom requests within reason are always given the consideration they warrant.

The suggestion of a card index usually prompts an ejaculation of impatience if not of disgust, but the simple index which is recommended will pay many times over for the work devoted to it. It should be kept only by the division officer; under no circumstances should anyone else keep it. Also, if it is not kept up-to-date its usefulness is greatly impaired. Each card should contain the name of one man, the date of his current enlistment and date of expiration of the enlistment, the number of years of previous service, the date and place of birth, his educational record, previous occupation and whether or not he is married. A brief summary of offenses and punishments should be included. One or more cards may be made for each man as necessary.

When the file is completed to this point it begins to serve its intended purpose. It becomes a record of progress of the individuals listed. On these cards should be jotted down any points of interest which may, from time to time, come to the notice of the division officer. The notes should include, along with the more serious offenses, minor infractions of regulations and instructions, acts of carelessness, and poor work which are not sufficiently serious to justify a report. On the other hand commendatory points must be noted as also should other matters which act in favor of the man. The index should become a biography of the division and not merely a record of offenses and punishments.

If the officer will devote a sufficient amount of time to the record suggested he will obtain that knowledge of his men which is vital to success. By the very simple process of maintaining the written record the officer forces upon himself that study of his men which alone makes them known to him. He learns them with their good points and with their defects.

It is a good thing for the division to know that such a record is being kept. It is not necessary to publish the fact for it will become known in a dozen different ways. A man will think, in fact he will know, that he is not being overlooked in the shuffle. The things that are done by Jones will be credited to Jones and the business of "slipping things over" will fail. If the only complaints about poor preparation of food come while Smith is in charge of the watch the cards will show it. If Brown's storerooms were in poor condition once in January, once in March and again once in June, the cards will show it. These things mean that now is the time to do something.

With a proper (which also means prompt) use of the knowledge obtained in this way the division will finally come to a time when it will have few men at the mast and when a man does go to the mast it will be a serious matter. It may mean disrating instead of a warning and the time of the captain and the executive officer will not be taken up by a multitude of minor reports which, of themselves, reflect a defect in the division officer.

Observance of the details suggested will assist in building up a good division if not an excellent one. The division officer will know his men almost as well if not so soon as they know him. The men will feel that they are going to get a square deal and their work will improve accordingly. There is probably no large body of men that recognizes and appreciates justice to any greater extent than the enlisted men of the Navy. A measure may be severe but if it is just it is accepted, if not with satisfaction, then certainly without complaint. The men in the division will know that their individual efforts and accomplishments are not going to be lost. There is nothing which will so surely take the pep and ginger out of a man as to have his good and faithful work in a remote part of the ship pass unnoticed.

There is one thing, which, though a digression from the scope of this paper, should be put down here as applying to some supply divisions. It is the matter of assigning men to battle stations. Through force of habit and maybe sometimes through the action of the division officer himself the men come to look upon the duties of their rating as their only legitimate duties. They think when they are assigned to an ammunition supply detail or as a talker on a fire control phone that it is done simply to give them something to do so the other men will not think they are being discriminated against.

That is not the right view to take, and the division officer who encourages it by asking to have his men excused is sowing the seeds of discontent which it will be dif-

ficult to keep from sprouting after he has seen his mistake. It is true that it is somewhat of a hardship to have the men working on the quarterly returns taken away from their work for a couple of hours a day for gunnery drills; but that is as much their duty as it is to get out the returns.

The division officer should see that all his men perform their military duties and he should point out to the gunnery officer such of his men as he believes to have special qualifications. A chief storekeeper should not be a messenger for a coding board or something like that when he may be particularly good on a target bearing instrument.

To get back to the main road, it is anticipated that objections will be made to the proposed division card record system on account of the amount of time required to put it in operation and keep it going. In reply to such objections, if they are to be considered at all, it may be said that, with the large number of men now composing a division on board ship, some kind of a written record is necessary if the identity of some men is not to be lost track of, and that the suggested method will take little more time than any other written record.

Another objection may be that the division officer cannot attend to these details. But he should attend to them—it is his business to attend to details. Officers are heard at times to remark that they cannot keep a proper grasp on the larger phases of their work if they have to be bothered with details. It is difficult to say where the line should be drawn which divides the major points of administration from the details. It is quite possible, however, to say that it should not be drawn between the division officer and the storekeeper or boatswain's mate.

Several years ago the PROCEEDINGS contained an article by Captain E. J. King on handling men. The article dealt chiefly with circumstances in connection with holding mast. There was also a discussion about the same time and on the same subject by Captain, now Rear Admiral McNamee. One question was: What should be done to a man when he is brought to the mast?

If the man is not brought to the mast in the first place, that question is unnecessary. Were a tabulation made of all reports at the mast it would probably show that very minor offenses are greatly in the majority; that the number of warnings approaches pretty close to the number of any one class of punishment; and that many reports may be questioned as to whether or not they should ever have been brought to the mast. When a man is warned instead of being punished it is certainly in many cases because the commanding officer is deciding between the man reported and the man making the report and gives the benefit of the doubt to the one on report.

The division officer may not punish a man but he may and does decide whether the man shall be reported. If he knows his men and shows that interest in them which this paper is intended to encourage he will have fewer occasions to make reports. It isn't necessary to appear frequently at the mast for the commanding officer to know that the division officer is on board the ship. When any one division occupies too much of the time of the captain or the executive there is something wrong. A man's mind doesn't dwell on his liver unless it is out of order.

Admiral McNamee says, "The greatest problem with which captains have to contend is what to do with boys that are reported as worthless." And he says that in very few cases is that verdict a just one. It might be said that such a report is hardly ever correct. The man making the report should say instead, "I am unable to develop the good there is in this man." When a man is transferred to another division because he is reported to be worthless, he leaves a record of failure behind him and goes to the new division with a tremendous handicap to overcome. If his new division officer accepts him at his face value and tries to help him he may make good; otherwise, sooner or later that man will be discharged under other than honorable conditions and may finally become worthless.

This article is intended to deal, not with the prescribed duties of division officers, the instruction of men, nor rules to govern their conduct; but rather to suggest how the average quality of personnel may be raised and to show that a successful officer must know what his men are doing; and to offer a method of readily acquiring such knowledge.

The Course *of* Training *for* Student Naval Aviators

By LIEUTENANT COMMANDER D. C. RAMSEY, *U. S. Navy*

THE prime purpose of this paper is to acquaint those officers of the service, who may be ordered to flying duties in preparation for naval aviation qualifications, with the nature of the primary flying work in store for them, and to set forth succinctly one's observations of previous aviation classes convened at Pensacola. A study of the experiences of individuals of widely different types, affords, in this field of endeavor, one criterion from which potential student aviators may deduce their ultimate degree of success and proficiency in the art of flying.

While suggestions and admonitions set forth may appear to the average mind to be elementary and unnecessarily stressed, they are considered of sufficient importance to be included in this article. The simplest precautions are often, through their very nature, the ones most readily forgotten or overlooked.

As a preface, it may be said that a dissertation on this subject has been prompted by four main factors which affect the status of the aëronautic organization of the Navy, and add in general to service interest in aëronautics namely, the following policies recently established by the department:

A. The establishment of an aviation curriculum at the Naval Academy.

B. Assignment of all ensigns for one month, during the first two years afloat, to a naval air station for twenty-five hours flying instruction.

C. Assignment of best qualified ensigns for an eight months' course at a naval air station to qualify as naval aviators.

D. Orders to flight training of officers of the rank of lieutenant commander and above.

The present place of the aviation arm in the naval organization and its potential factor as a coöperative, striking, and protective force indicate clearly the motives which have shaped the above policies.

That the desirable expansion of the aviation arm demands an increased quota of senior line officers to fill the various positions of command and responsibility consistent with such expansion, is evident. In aviation, however, perhaps to a greater degree than in any other branch of the service the officer best qualified as a leader is one whose experience in his field of work has been such as to command the highest respect and confidence of his subordinates. Obviously, an imposed flying mission of hazard and complexity will be undertaken with greater enthusiasm if it is known that the officer from whom orders to such a mission emanate, has a thorough and practical knowledge of all conditions and aspects which affect its consummation. It is believed that an appreciation of this basic principle will be an inspiration to the officers affected by policy D to devote the maximum time possible to the acquisition of practical flying experience.

As is generally known, classes convened at Pensacola for flight training are made up of voluntary applicants for such duty who have successfully passed preliminary physical examinations. The line quotas of such classes are ordinarily augmented by a number of junior marine corps officers, selected for training by the Major General Commandant. From the date of reporting for duty, all students are under the close personal observation of the superintendent of aviation training, the senior flight instructor, and the flight surgeons. An additional physical examination is required before actual instruction in preliminary flight training begins, so it is safe to assume that the physical qualifications of all members of the student body are accurately determined before this phase of the work is taken up. At this point, it

may be apropos to stress the fact that in actual flying, fractional second differences between the times of mental registration, decision, and reaction may easily result in landings varying from normal to serious crashes. The physical factors attendant in this cycle are essentially complex and vary widely in different individuals. Only approximate predictions of aptitude in emergencies can be deduced therefore from the results of methods now in vogue in examination laboratories.

It is perhaps well known to the majority of officers in the service, that of the total number of students who actually take up flight instruction at Pensacola, but approximately fifty per cent eventually receive naval aviator designations. These figures, at first sight, may appear disappointing, and are certainly discouraging to the hope that eventually, all future Naval Academy graduates may be considered to be potential aviators in the same sense that they are now appropriately considered navigators and gunnery officers. It is firmly believed, however, that the established policies now in full force which tend to the grounding of all line officer personnel in aviation matters, will materially decrease the number of rejections of candidates who take up courses of instruction for qualification as naval aviators. This belief is based, in the main, upon the fact that in the past, many students selected for flight training have had, previous to reporting for such duty, no flying experience whatsoever, and consequently no means of predicting what their mental reactions to different phases of the course might be.

In support of the standards of flying proficiency required at Pensacola before qualification, it is desired to lay especial emphasis upon the following points:

A. The types of planes used for instructional purposes are standard, and compare favorably aërodynamically and structurally with the best.

B. The systems of maintenance, overhaul and inspection of planes and engines are of proved efficiency.

C. Natural facilities for seaplane operation are excellent. Facilities for the operation of land planes are being improved constantly.

D. Flight instructors are carefully selected for this detail. They are checked from time to time by the chief instructor for the purpose of maintaining a standard flying technique for instructional purposes.

E. Students who fail to pass ten hour checks for solo are passed on by two or more instructors before the final check flight with the senior instructor. All such students are given a hearing before the advisory board before being reported to the commandant as unsuitable aviation material.

The major deficiencies in student aviators which most frequently result in disqualification are those which pertain to a lack of sense of feel of controls and failure to coördinate and react rapidly in emergencies. In this connection, it should be understood that failure properly to coördinate is in no way due to physical derangement or abnormalities existing in the center of equilibrium, but, in the vast majority of cases, to actual psychological inhibitions or blockings incident to failure of self adjustment to the new flying environment. It is possible, and perhaps probable that, should students be permitted to continue under instruction for protracted periods in excess of the time limit usually allowed for qualification for solo, these shortcomings, in some measure, might be corrected. It is considered, however, that the interests of economy and safety would be seriously jeopardized by the adoption of such a policy.

In some cases, students called before the advisory board at Pensacola through having been reported for incompetency in flying admit that they do not consider themselves temperamentally or psychologically fitted for flight duties. Admissions of such a nature by no means reflect discredit upon an individual. It would be well if some friends and acquaintances of the writer would plead guilty to the charge of being incompetent automobile drivers. Candor in such matters is certainly to be encouraged at the sacrifice perhaps of a small amount of pride.

It is a well known fact that the effect of altitude upon some persons produces a psychological mental reaction which causes nervousness and lowers efficiency. One so affected might display magnificent courage and stoicism in a diver's suit, in the face of some submarine peril, or set an example of valor to men on the field of battle. The psychology of courage is well illustrated by the following story, for the authen-

ticity of which the writer unhappily cannot vouch:

An English pilot and his observer, during the early days of the late war, found themselves far over the enemy lines in an antiquated plane of pre-war design. At the moment, they were being harrassed by enemy machines and anti-aircraft fire. The wings had been torn by shrapnel. The engine was overheating and missing badly. A forced landing on enemy terrain, with dire results, seemed inevitable. The pilot, however, maintained an eastward course towards his objective until a well directed anti-aircraft burst splintered the propeller. At this stage of the nerve racking flight, the observer reached over to the dash, nonchalantly switched off the engine and is alleged to have remarked that he was aware of the identity of the author of a letter which the pilot had received before taking off from the aërodrome that morning. He added that he was conscious of the sentiment which had prompted the writing and suggested that his companion communicate at the earliest possible moment with the sire of the young lady in question and request her hand in marriage. While side slipping over a clump of trees to a crash landing, the pilot is alleged to have replied that the idea had been in his mind for over a fortnight, but that he really had not been able to find the courage to carry it out.

To those officers who survive the tests for solo, there comes a critical period. It is estimated to fall between the times that they have had from ten to twenty hours alone in the air. During early acquaintance with the art of flying, confidence grows rapidly until it approaches an attitude of lack of respect for plane and engine alike. It is fortunate that the majority of young pilots have their excessive ardor dampened by the example of less fortunate individuals who come to actual grief through a lack of understanding of the fact that aërodynamics can never be an exact science, and that Newton's law is still working in full force. Provided physical members can be readjusted and nerves are not too badly shaken, an aviator emerges from the wreckage of his initial crash, a sadder, but a much wiser and more useful pilot.

In justice to aviation personnel in general, it must be said that many accidents are unavoidable, but, in the main, at this stage of aëronautical development, the majority of casualties are due to human rather than to material frailties.

It has been said many times, that a vivid imagination is an aviator's curse. In a measure there is a world of truth in this statement for the pilot who permits his mind to dwell constantly during flight upon incidental hazards, such as collapse of structural members, engine failures, fire or collision, will soon tax his nervous system to such a point that his usefulness as a member of an active flying unit will not only cease to exist, but his continued affiliation with such a unit will eventually have a deleterious effect upon the morale of other members. Phlegmatism to the point of the assumption that nothing can ever go wrong is equally dangerous, for this attitude frequently finds men unprepared for emergencies. The ideal mental attitude toward flying should be one of confidence in self and in equipment combined with perpetual respect for such equipment and a composure which will tend to the adoption of the preferable course of action when emergencies arise.

Let us dwell for a few paragraphs on the subject of the practical flying of the *N-9* type seaplane, a type which has been used for primary instruction at Pensacola for the last ten years. There are many seaplanes in existence which are actually easier to fly than the *N-9*, but few, if any, which combine the many desirable characteristics for training which this plane possesses. To begin with, the plane will not fly itself. Its small dihedral and relatively large wing area and span make it laterally sensitive and require the constant manipulation of the ailerons to keep it trimmed laterally in flight in disturbed air. Both reserve engine power and speed range are small, a combining factor which is conducive to an early familiarity with judicious use of the throttle. Its high factor of safety, general ruggedness and low top speed recommend it perhaps above all other qualities for primary training. If it is written in the books that you are going to have a crash, it is highly preferable that you crash in a plane of this type rather than any other.

Early in the period of instruction, the student is put through various stunting maneuvers by the instructor, for the purpose of familiarizing him with unusual attitudes in the air and to illustrate the ease with which recovery and normal flight may

be resumed. This experience during the early period of instruction is valuable to the student as it contributes to positiveness in the manipulation of the controls and enhances the confidence with which solo work is taken up.

Experience in the operation of *N-9* seaplanes at Pensacola has covered such an extended period, and students are so thoroughly familiarized with precautionary measures to be taken before and during flight, that it would be presumptuous to dwell at any length upon this subject. It is desired, however, to list a few suggestions which, while apparently elementary and of relatively small importance, are better noted than disregarded.

A. Be sure that goggles are secured to helmet and that facilities for wiping lenses in flight are available.

B. Satisfy yourself that safety belt in front seat is secured and clear of controls before taking off.

C. Make it a practice to look over top wing before taking your seat. Cases are known where tools have been left there.

D. In normal flight in areas where other planes are operating, at frequent intervals drop right, then left wing and nose down to verify positions of all other planes in the general direction of your course. Be alert for changes in wind direction, and before going into a voluntary spin, allow for any set which might carry you over the land.

E. In coming out of spins or stalled altitudes, give the plane ample opportunity to recover before adopting other than standard measures of procedure in such circumstances.

The completion of the *N-9* course finds the student ready to take up training in the advanced types of seaplanes or primary types of landplanes. While training in *F-5-Ls* or other multi-engined machines may not form a part of the course of instruction at the present time, this type has proved its usefulness for general utility purposes and all pilots, as a consequence, should have an understanding of its flying characteristics. Too much stress can not be laid upon the necessity of treating the *F-5* in the air with the utmost respect. Steep turns at low altitudes are to be discouraged, particularly in bumpy air. Recovery from sharp banks is often sluggish and at times beyond the physical capacity of the pilot who above all things should not lose sight of the fact that the lives of other occupants of the plane are dependent upon his skill and judgment. It is not desired to give the impression that this type of plane is dangerous. Records of cruises to Central America and the flying operations conducted at Annapolis during the summer of 1926 prove it to be otherwise.

Solo work in the various types of land planes is taken up at the completion of the seaplane course after a few hours' instruction. No trouble in completing this course should be experienced. The enlargement of the air station field, the excellent facilities offered by Curry field, and the availability of several new emergency landing fields in the vicinity afford good provision for land plane operations.

Shortly after taking off from restricted land areas flanked by obstructions or other hazards there is, under one emergency situation, an inheritance which appears to be common to all aviators, namely, the instinctive tendency to attempt to return to the field in the event of motor failure at low altitude. This tendency has been the cause of so many fatalities in aviation that the alternative procedure of continuing on in the direction of the take-off suggests itself as being preferable in the vast majority of cases. The danger factors which attend the adoption of the instinctive procedure are obvious when they are considered. To begin with, speed falls off rapidly after loss of power, and controls become sluggish. Concentration is required on the position of the plane relative to the field during the down wind turn with the attending natural disregard of the attitude of the plane and its rapid approach to the stalling point. The eventual stall which has occurred unhappily so often under these circumstances, results in a down wind crash. While the continuance of the original direction of flight will result most certainly in material damage, the danger to life and limb is minimized, for the pilot by immediately nosing down at the first sign of motor trouble can maintain control in horizontal flight, can give the maximum amount of attention to the speed and altitude of the plane, can avoid the most serious obstructions by gradual changes in course, and eventually he can have the advantage of landing directly into the wind at the lowest possible speed.

The completion of the course of flight training finds the graduate with approxi-

mately 230 flying hours to his credit, apportioned to five or more different types of planes. The actual time devoted to gunnery, formation flying and scouting is a small part of the total, so in the main, the time spent in the air has been given up to the acquisition of individual familiarity with the basic and primary elements of flying. Such time should not be begrudged. There is a lesson in every flight which will better fit the pilot to attack the problems of catapulting and deck landing and give the maximum amount of concentration to the complex duties of fighting, observation, bombing and torpedo dropping during his periods of duty with the operating aircraft units of the fleet.

The restrictions in force for several years which limited the age of officers who took the naval aviator qualification course would indicate that seniority in years handicaps flying ability. While reflexes in the thirties and forties may not be so keen as in earlier years, it is submitted that the controlling factor of success is mental attitude.

The following final suggestions are respectfully tendered to officers of all grades and ages who expect to report for flight training at any time in the future:

A. Avail yourselves of every opportunity to fly as passengers.

B. Take a course of reading in aviation literature, and if practicable, familiarize yourselves with the contents of approved aviation ground school manuals.

C. Practice sending and receiving in radio code.

D. Emulate the example of many flight instructors who impose upon themselves a course in physical training before taking up their duties.

For those physically fit who really feel the call of the air, who combine in their complexes a confidence in self, tempered with continued respect for equipment, the writer predicts a long succession of "happy landings."

Statement *by the* late John Hay

Secretary of State, 1898-1905 Regarding *the* Diplomatic Services *of* American Naval Officers

DURING the winter of 1902-3, apropos of a revolutionary situation existing on the borders of the Caribbean, Mr. Hay, in the Cabinet Room of the White House, remarked to Mr. Roosevelt in the presence of Rear Admiral Taylor, Chief of Bureau of Navigation, that:

> ***He always felt relieved when the naval officer had arrived on the scene because he always kept within the situation.***

In 1904 Mr. Hay stated to Rear Admiral Chadwick, then President of the Naval War College:

> ***We have had a number of difficult international situations in the West Indies and Venezuela in the last two years and they have all been handled by naval officers very well. They have not made a single mistake.***

See page 390.

The Naval Officer *in* Diplomacy

By the LATE REAR ADMIRAL H. S. KNAPP, *U. S. Navy*

EDITOR'S NOTE: Both the Nicaraguan and Chinese situations are so important and timely that it seems appropriate to print the lecture given at the Naval War College in 1923 by the late Rear Admiral Knapp. His service and experience were such as to cause him to be recognized as an authority on the subject matter under consideration. Admiral Knapp relieved Admiral Sims in London after the Armistice and later was appointed by the President as Military Governor of Santo Domingo. The article will be found to deal more with the diplomatic side, as the title indicates, than it does with the handling of international law situations by naval officers.

THANKS to Kipling the characterization of the seaman as "the handy man" has become permanent in literature. Whether or not Kipling intended to restrict the appellation to men below decks, I claim that it applies equally to men who hold commissions, in which I am sure that your president will agree. As his successor in the European command, I take pleasure in saying now, as I always do take pleasure when opportunity occurs to say it in good taste, that no task arose in the trying days of demobilization that was beyond the capacity of naval officers to perform, and to perform well, however far removed from an officer's experience and usual activities. Some of these tasks were inheritances and some arose as time went on. It is a matter of great service pride to me to recall how naval officers all over the southern and western parts of Europe did things that really pertained to civil administration; and, as I have said, did them well—in some cases with distinguished ability.

What has just been said may appear to be rather wide of the subject; but that would be a mistaken notion. There is something in the training and experience of naval officers that makes for flexibility of mind and the application of hard common sense to the task in hand, which it was the intention to illustrate by reference to personal observation during my last months of duty before retirement. When an unusual task arises these qualities are immensely valuable. My belief in their existence among naval officers was no new thing but it was greatly strengthened during my last eighteen months of active service.

Now diplomacy is not ordinarily the mission of the naval officer, but if it comes in an officer's way to engage in diplomacy, why should we doubt that his flexibility of mind and common sense, combined with his experience, will enable him to do it successfully? John Bassett Moore, in his *Principles of American Diplomacy,* speaking of American statesmen at the time of the French Revolution, says that they "were not mere doctrinaires. Their aims were practical." It is generally true of naval officers that they are not doctrinaires and that they have practical aims. Diplomacy is statesmanship applied to foreign relations. If practicality be a good thing in the equipment of a statesman or diplomat, the practical qualifications of naval officers to which I have referred should be a good foundation for diplomatic work in case of necessity.

It can scarcely be claimed that the life experience of the naval officer is a broadening one in the way of general culture in literary and intellectual pursuits. But it is broadening in the practical matter of international affairs and a knowledge of foreign peoples. As a class naval officers, and especially senior naval officers, are as widely traveled as, and have more contact with foreign officials than, any other class of our citizens; and a somewhat discriminating knowledge of relations with foreign nations is a necessity for the officer who has to justify his reason for existence. Can it be believed that the average experienced senior officer—and only to such would the opportunity be apt to come—is any less fitted for diplomatic action than some citizen (in many instances chosen largely because his fortune is sufficient to bear the

expense of representing the government abroad) whose previous experience in diplomatic life has been no whit greater than the officer's own? It has not been so in the past; it is not so at this moment and we may confidently assert that it never will be so. While the exercise of diplomatic functions will be a rare experience for naval officers, we, who have an abiding faith in our profession, shall confidently expect that the work will be well done by them if occasion arises.

It will be of interest to note some of the instances in which American naval officers have acted in a diplomatic capacity. You will recall that the United States was the first nation to put an end to the exactions of the Barbary pirates. Operations went on for about fifteen years. In 1801 the Pasha of Tripoli, not content with the $30,000 tribute—blackmail—then being paid for immunity, cut down the flagstaff of the American consulate, and, in addition, held Americans for ransom. With the consequent naval operations we are not especially concerned here. A treaty was negotiated with him in 1805 by which the prisoners held for ransom were released, tribute thereafter was waived, and respect for American commerce was agreed to for the future, but this did not clear up the situation, for the Algerine pirates continued their depredations. Commodore Decatur brought the Dey of Algiers to terms and, in 1815, was co-signer with William Shaler of a treaty which insured, in the words of Willis Fletcher Johnson (*America's Foreign Relations,* Vol. I), "the abolition of the hateful and humiliating tribute which we had regularly paid down to that time." John Basset Moore (*op. cit.*) says of this: "Decatur . . . . compelled the Dey on June 30 to agree to a treaty by which it was declared that no tribute, under any name or form whatever, should again be required from the United States. No other nation had ever obtained such terms." The treaty was renewed in the following year, one of the signers being Commodore Isaac Chauncey in his capacity as commander-in-chief of the naval forces of the United States in the Mediterranean.

At the beginning of the nineteenth century, in 1826, Captain ap Catesby Jones of the Navy negotiated a treaty with the Hawaiian government, on his own initiative and without special instructions. It was an excellent treaty, but the Senate was not as wise as the naval officer and failed to ratify it. Thus the distinction and advantage of being the first nation to enter into treaty relations with Hawaii passed from the United States. Ten years later, in 1836, Great Britain made and ratified a treaty with Hawaii, followed three years later still by France. Both of these treaties, like that of ap Catesby Jones, were negotiated by naval officers.

In 1839 Commodore Wilkes, during his famous expedition, entered into an agreement with Samoan chiefs by which the interests of the natives and the whalers and traders visiting the islands from time to time were provided for. He appointed a consul to represent the United States and took measures to insure amicable relations in the future between the islands and the United States. (*Encyc. Americana*) No regular treaty seems, however, to have been made until 1878. Moore says (*op. cit.*) that in 1782 "the great chief of the bay of Pago Pago, in the island of Tutuila, desirous of obtaining the protection of the United States, granted to the government the exclusive privilege of establishing a naval station in that harbor." From another source I have learned that it was Commander Meade of the Navy who obtained this grant (*Cath. Encyc.*), which was the basis of our claim to the islands east of 170° East longitude, in the tripartite treaty with Great Britain and Germany later on.

Our first treaties with an Asiatic power can hardly be claimed to be to the credit of the Navy, although the stamp of the sea was on their negotiator, Edmund Roberts, a sea captain of Portsmouth, New Hampshire, and he was rated as "captain's clerk" on board the naval vessel that took him out, so that we may perhaps claim him as a naval officer "once removed." He certainly did not go in great state, for we read (Moore, *op. cit.*) that "If we were to judge by the provision made for his comfort and remuneration, we should infer that little importance was attached to his mission. His pay was barely sufficient to defray the cost of an insurance on his life for the benefit of his numerous children; and for three months he was obliged to lie on the sea-washed gun-deck with the crew, all the available space in the cabin being occupied by a *chargé d'affaires* to Buenos Ayres whose name is now forgotten." Roberts

was only partially successful, but he did bring back treaties with Siam and Muscat.

We now come to an incident of great interest in connection with our subject. At the time of the "Opium War" between Great Britain and China the United States kept a squadron in the Far East for observation and the protection of American interests. It was under the command of Commodore Kearny, who obtained a heavy indemnity for illegal acts against the persons and property of Americans; but, far more important, he achieved a notable diplomatic coup at the end of the war. Quoting Johnson (*op. cit.*):

> Learning that in the peace treaty new tariff and trade regulations were to be made between China and Great Britain, he resolutely demanded that American citizens should be included, to enjoy the same advantages; in brief, that the "most favored nation" principle should be established in their behalf. The governor of Canton agreed that this should be done, testifying that American merchants in China had not been guilty of smuggling or other illicit practices but had confined themselves to honorable trade. On receiving this assurance Kearny would have taken his departure, but the American consul urged him to stay, as the presence of his vessels would have a salutary effect upon the Chinese commissioners who were coming thither to make the treaty. Kearny accordingly remained, and secured from the commissioners the formal and explicit assurance that whatever trade concessions were made to Great Britain should be fully and equally extended also to the United States. This was done, and as a result an "open door" was first secured in China, for all nations on equal terms; a result which, according to one of the British commissioners who negotiated the treaty, was due to Commodore Kearny's wise and resolute action.

This is a bit of our diplomatic history in which naval officers may take justifiable pride. Mr. Hay gave the phrase, "Open Door in China," to the world; but it is seen that the principle was established in 1840 by a wise American naval officer, ably advised by an American consul.

Matthew Calbraith Perry[1] is our most distinguished exemplar of the naval officer in diplomacy. For over two centuries before his expedition to Japan that country had been maintained in a remarkable state of seclusion. In 1636 the Shogun Iyemitsu caused all deep-sea shipping to be destroyed and forbade the building of more. Thereafter the Japanese lived strictly to themselves. Toward the end of the eighteenth century the Dutch were permitted the very limited intercourse of not more than one ship a year, and Nagasaki was the only port open to that extent. The first American vessel to visit Japan was the *Eliza*, under charter to the Dutch, who were at that time, 1797, at war with Great Britain and feared capture of their own vessels on the long voyage to Japan. The Japanese permitted the *Eliza* to fulfill her mission, as did other American vessels on a similar mission during the Napoleonic Wars. It was forty years later, in 1837, that the first serious American attempt was made to establish relations with Japan. It was a private venture and it failed. Eight years later an American shipmaster who had picked up some shipwrecked Japanese thought he might make their return the occasion of a more successful attempt, but he likewise failed. He was told not to do it again, and was informed that the emperor preferred to have castaways abandoned rather than have strangers enter Japan. In 1846 Commodore Biddle went to Japan with credentials to make a treaty, but made rather a lamentable failure of his mission. In 1849 Commander Glynn was sent to Japan to demand redress for the ill-treatment of American seamen who had been shipwrecked and were being held as prisoners. He got the prisoners, who told such dire stories of their treatment as to arouse great indignation here. This was a contributing cause to the determination to bring relations with Japan to an issue, which resulted in the choice of Perry, who went out clothed with full credentials from the President and the Secretary of State. His diplomatic quality was thus deliberately conferred and was not the result of accident of service, as had been that of Kearny.

Perry's success in negotiating a treaty was a great feat, of which Johnson says (*op. cit.*): "Throughout the western world the treaty was hailed as an unsurpassed triumph, and the highest credit was everywhere given to Perry for the diplomatic genius which he had exercised. Nor was the achievement appreciated in Japan less than elsewhere." Moore's account gives an insight into the methods of Perry which is interesting as an example of the adaptation of means to the end. He says:

> His (Perry's) proceedings were characterized by energy and decision. He had, as he said, determined to demand as a right and not to solicit as a favor those acts of courtesy which are due from one civilized nation to another, and to allow

[1] See Japanese prints of Perry's visit in February and March numbers of PROCEEDINGS.

none of the petty annoyances which had been unsparingly visited on those who had preceded him. He declined to deliver his credentials to any but an officer of the highest rank. When he was asked to go to Nagasaki, he refused; when ordered to leave the bay, he moved higher up; and he found that the nearer he approached the imperial city "the more polite and friendly they became."

Two princes were finally detailed to receive Perry's credentials. After delivering them he left Japan for a time in order to give the Japanese an opportunity to consider the treaty arrangements he proposed. Moore continues:

He returned with redoubled forces in February, 1854, and, passing the city of Uraga, anchored not far below Yedo. The emperor had appointed commissioners to treat with him, four of whom were princes of the empire. They desired him to return to Uraga, but he declined to do so. The commissioners then consented to treat at a place opposite the ships. Here the Japanese erected a pavilion, and on March 8 Perry landed in state, with an escort of five hundred officers, seamen and marines, embarked in twenty-seven barges. "With people of forms," said Perry, "it is necessary either to set all ceremony aside, or to out-Herod Herod in assumed personal consequence and ostentation." A treaty was signed on March 31, 1854. American ships were allowed to obtain provisions and coal and other necessary supplies at Simoda and Hakodate, and aid and protection in case of shipwreck were promised. No provision for commercial intercourse was secured, but the privilege was obtained of appointing a consul to reside at Simoda. Such was the first opening of Japan, after two centuries of seclusion.

Perry's achievement was of far more than national significance; it was an epochal event of world-wide importance. If in later days it has brought anxious moments to his country as well as self-satisfaction, it was at the time an unadulterated triumph that shed luster on his own name and on the service to which he belonged.

It was more than a quarter century after China and Japan had emerged from their isolation before Korea entered into treaty relations with the western world. Again the United States led the way, and again a naval officer was the diplomatic agent. Quoting Moore (*op. cit*):

Korea, the Land of the Morning Calm, continued, long after the opening of China and Japan, to maintain a rigorous seclusion. Efforts to secure access had invariably ended in disaster. On May 20, 1882, however, Commodore Shufeldt, U.S.N., invested with diplomatic powers, succeeded, with the friendly good offices of Li Hung Chang, in concluding with the Hermit Kingdom the first treaty made by it with a western power. The last great barrier of national non-intercourse was broken down.

The examples thus far instanced have been drawn from days somewhat remote from our own times—days when wind was the motive power or when steam power was in its infancy in the Navy; when the world was not encircled with cables; when radio was still to be discovered; days, in short, when world communications were primitive as compared with those so familiar now. The marvelous change in the facilities of communication that has taken place in a period of time insignificant in comparison with that covering the history of civilization, even modern civilization, has profoundly modified human relationships, international as well as intranational and personal. As diplomacy is concerned with international relationships, this change is one is to be taken into account in considering the subject in hand. It undoubtedly tends toward a centralization of authority, in the State Department as well as in the Navy Department; which is only another way of saying that its tendency is to diminish initiative, and to impose a handicap upon the independence of action of officials. The ease of modern communication makes the most resolute and self-confident man think twice before adopting a course of action that he would adopt without hesitation if so situated that weeks or months instead of hours would be necessary for consultation with the home government; while the irresolute or self-distrustful man, or one who fears to accept responsibility, has under modern conditions a ready reason for doing nothing until he can be told what to do. It might, therefore, be thought that modern communications stand in the way of an opportunity for present-day naval officers to engage in diplomatic work. That this is not so a few instances may suffice to show. It is not to be expected that the opportunity of a Kearny or a Perry will rise under modern conditions, but there are other ways in which naval officers may still have an opportunity to do useful diplomatic work.

Thus, some years ago, affairs in China were in a critical stage. The commander-in-chief was Rear Admiral Murdock, now retired. We heard it said that he was the commanding figure of American influence out there, if not indeed of the entire foreign influence. In Washington, where I was at the time (1911-12), his reports were the standards of information.

In 1905, Captain (afterwards Rear Admiral) Dillingham was intimately connected with the arrangements made with the Dominican Government whereby the collection of customs revenues was done under the direction of an American and the service of the foreign debt was assured. The treaty concluded was not ratified by the Senate, but the President put the arrangement into effect as an interim measure after Congress adjourned, and it proved a great step toward the stabilization of that turbulent little country, and a relief to both it and the United States from the danger of foreign intervention. It served as a model for the treaty of two years later, which was ratified; and that treaty in turn was a model upon which a still later treaty with Haiti was largely based. It is not too much to say that the action of 1905 marked the beginnings of a policy that has been continuously followed since.

Two officers, each sometime president of this college, have within recent years done distinguished diplomatic duty for the country. Rear Admiral Sperry was a delegate to the conference at Geneva for the adaptation of the principles of the Geneva Convention to maritime warfare, and later was a delegate to the second Hague Conference; while Rear Admiral Stockton was a delegate to the London Conference. . . . . At this moment (1923) two other officers are holding diplomatic positions as High Commissioners, of both of whom I am happy to be able to speak from personal observation. At Constantinople Rear Admiral Bristol as High Commissioner is doing service of which the nation no less than the Navy has occasion to be proud. Rear Admiral Bristol first went to Constantinople in a strictly naval capacity as detachment commander, the State Department being apparently disinclined to give him any diplomatic functions. Without adventitious aids he soon established for himself such an influential position by sheer force of character, by his intelligent grasp of the situation (which was and is very complicated), and by his alert and careful guarding of the interests of his country and his countrymen that his appointment as High Commissioner followed. Since then his conduct of affairs has been so successful that it is now understood that the State Department is unwilling to have him replaced, and given the relief from his harassing duties which he naturally seeks. [He is still there.] It is a proud record.

Quite recently Brigadier General J. H. Russell of the Marine Corps was appointed High Commissioner to Haiti, and it is a matter of some personal satisfaction to believe that the seed of the idea was sown by me over a year ago. The Navy has a double interest in this latest essay of an officer in the paths of diplomacy. General Russell is of the Navy because the Marine Corps is a part of the Navy, and for the further reason that he is a graduate of the Naval Academy and of the War College. I have personal knowledge of the difficulties with which he must contend, and of his high qualifications for his task. It is too early yet to speak of actual accomplishments, but that he will do everything possible in his difficult situation may confidently be expected.

Another recent case of the employment of a naval officer in diplomatic duty was that of Rear Admiral McCully in southern Russia. The force commander was urgently requested by the State Department to spare Admiral McCully's services from the European command in order that he might be able to undertake the duty. While engaged upon it he reported directly to the State Department as an official under its jurisdiction. It is a source of service satisfaction that Admiral McCully was chosen for his responsible position near Generals Denikin and Wrangel because of his acknowledged unusual acquaintance and sympathy with the Russian people.

Mention must be made of the opportunity that is ever present to a naval attaché to have an influence in diplomatic affairs. From my own limited experience in this kind of duty it is my impression that the weight of an attaché's influence will depend in large measure upon himself, and upon his conception of the range of his duties. If he is alert, and his interest is not confind to technical matters but extends to the currents of national thought and effort of the people with whom his lot is temporarily cast, he may have a very considerable weight in the diplomacy of his embassy or legation. Your president has a much wider experience in this particular than I can pretend to have. As his successor in London in 1919, like him I combined the offices of attaché and force commander, an unusual condition born of the war, under which all

attachés in Europe were in a measure subordinate to the attaché in Great Britain. I personally found that naval headquarters in London often had earlier and better information than the embassy, especially from Constantinople and the Adriatic. I was told by General Summerall [he is now, 1927, Chief of Staff, U. S. Army], the American representative on the Interallied Military Commission that went to Fiume to report upon the unfortunate incident of July, 1919, that he had learned more in his preliminary investigation in Paris from Admiral Andrews' dispatches to me than from all other sources combined, including the French Foreign Office. This was high praise. It will not probably often happen that a naval attaché will have acknowledged credit for diplomatic influence, but I firmly believe that he is a position to have the reality. In published correspondence dating just before the war I have read dispatches from military and naval attachés of noteworthy diplomatic importance, aside from their military and naval information value.

My reference to Admiral Andrews leads me to speak of the exercise of diplomatic ability in the course of a purely naval command, because that point was so well illustrated by him while in command of the Adriatic Detachment. I say no more here than I have repeatedly said elsewhere in expressing my conviction that he kept the peace in that sea. . . . . By tact and persuasion, combined with firmness and exact justice, through weary months he prevented the tension between Italians and the Jugo-Slavs in his vicinity from breaking out into open conflict. Surely this was a display of diplomatic qualities of a high order, to which I am the more glad to testify here because they do not seem to have had elsewhere the recognition that they deserve.

Sufficient examples have been instanced to show how naval officers have been, and now are, of diplomatic service to the government. I shall now permit myself some reflections more or less closely connected with the subject under consideration.

It may seem a strange assertion to make in the light of all the postwar conflicts of interest that are so apparent, but I believe that there is a distinct advance in the general attitude of nations as regards foreign relations—one toward the Golden Rule as a governing condition of international conduct. That goal is still far distant, but there has been progress toward it. Let me give you one instance. In September, 1899, when Secretary Hay approached the governments of Germany, Great Britain and Russia with a view to their making "formal declaration of an 'open-door' policy in the territories held by them in China"—to quote Mr. Hay's own words—and later approached the governments of France, Italy and Japan in the same sense, an essential feature of his instructions to our ambassadors and ministers was a recognition of "spheres of influence" on a parity with leased territories. There was no hint that spheres of influence *per se* were undesirable; they were accepted as an existing condition. In the intervening twenty-two years between then and the Washington Conference the conscience of the world had been awakened, and Article III of the Nine-Power Treaty, Relating to Principles and Policies to Be Followed in Matters Relating to China, puts an end to "spheres of influence," a fact that has had surprisingly little notice. The following is quoted from the report of Mr. Balfour's remarks in committee while this subject was under consideration:

> The British empire delegation understood that there was no representative of any power around the table who thought that the old practice of "spheres of influence" was either advocated by any government or would be tolerable to this conference. So far as the British government was concerned, they had, in the most formal manner, publicly announced that they regarded this practice as utterly inappropriate to the existing situation . . . . The words "general superiority of rights with respect to commercial or economic development in any designated region" were words happily designed, as he thought, to describe the system of spheres of influence; and the repudiation of that system was as clear and unmistakable as could possibly be desired.

This Nine-Power Treaty is a new bill of rights for China as well as a formal engagement of the contracting powers among themselves. It marks a great advance over the attitude of only twenty-two years before, and a still greater advance over that of Commodore Kearny, who sought only for his own country equality of rights with Great Britain in China, with no apparent solicitude for any rights of China herself. A similar advance in international ethics may be seen in other directions, often disguised and perhaps with its inspiration in enlightened self-interest as well as moral

principle; but I believe that the latter motive is increasingly operative, following the enlightment of the group conscience of civilized peoples.

My own faith in this matter would not, however, lead me to relax one iota of vigilance if diplomatic duty came my way; for there are still plenty of statesmen and diplomats whose interpretation of the Golden Rule in international dealings is more in accord with David Harum's statement of it than with that of the Scriptures; but if my faith is justified as a general conclusion, then that conclusion must be reckoned with in statesmanship and diplomacy. This is especially true for Americans, and for naval officers as representative Americans, because the United States has been throughout all its history a torchbearer in international ethics.

The last remark suggests another thought; naval officers should have a thorough knowledge of our own history and traditions, and keep themselves informed to the minute of the evolution of our national policies. It was remarked at the beginning that diplomacy is not the mission of a naval officer; but it may become a mission, and a vitally important one. In the light of that possibility officers should have some thought of preparing themselves for the eventuality, should it come, and especially officers who have attained the higher ranks. Surely there can be no more fundamental preparation than a knowledge of our own history and traditions, our institutions, our outlook upon the world, our time-honored policies, and evolution leading to a modification of the national viewpoint. The statement needs no elaboration to prove its truth.

Another preparation, important to a less degree only, is a knowledge of foreign nations. The ignorance of and indifference to international affairs of the generality of Americans is as lamentable as it is noteworthy. As a people we have looked in and not out; our attitude toward the world has been parochial. Too many of our people think we can deal with Latins as we do with Anglo-Saxons, with Turks as with Slavs, with Asiatics as with Europeans, or with any of these as we deal among ourselves. Too few appreciate how the people of all nations are becoming more and more citizens of the world, fellow-citizens, and that the United States cannot, if she would, continue to live the life of a snail. The late war has done much to correct this fault, and it is a happy sign that agencies like the Institute of Politics at Williamstown, and courses in international relations in many colleges, have been established in our country; but much virgin ground remains yet to be broken in the intellectual soil of the United States before there can be any expectation of broad general comprehension of our relationship to the rest of the world.

Elmer Davis, one of the editorial staff of the New York *Times*, a man well qualified to speak, has something to say in this connection in a paper on American Influences in Eastern Europe, read before the last annual meeting of the American Academy of Political and Social Science and published in the July (1922) *Annals*. He says:

> Any active, prolonged and effective influence of America on European politics or rather on the complicated political-economic international relations of today, postulates an American public opinion informed on, and interested in, world affairs. Such an opinion does not exist outside of very limited circles. No doubt it is growing, but very slowly. Even when it flashes up unexpectedly under the pressure of immediate economic need, as in the resolution of last winter's Agricultural Conference in favor of participation in the Genoa meeting, it is apt to be poorly informed and misdirected. For nearly a quarter of a century America has had territorial interests in the Far East; wars in the Philippines, in China and Manchuria, have attracted American interest; our diplomacy has in that field, as in hardly any other, had a continuing and consistent policy. Since 1898, in other words, we have had materials for the formation of a public opinion on Asiatic problems such as we have had for European questions only since 1918. Yet the Washington Conference, and the discussion of the treaties which followed it, showed that even on Asiatic affairs our public opinion was comparatively feeble and uneducated. To expect any general intelligent interest in European affairs for many years is rather visionary.

Ignorance of foreign affairs may seem to be a straw man raised to be knocked down when I say that I do not believe that this reproach may be laid at the door of naval officers. My point is that they should shine in this respect by comparison with the great majority of their countrymen on the same plane of education and social station; and specifically that they must keep abreast of our foreign relations and have a knowledge of foreign nations—of their institutions, their policies, and as far as may be of their psychology—to fit themselves for diplomatic duty (the example of Perry in Japan is an instance of adapting methods

of psychology). Naval officers have unusual opportunities so to fit themselves, and have little excuse for failure to do so.

I take occasion here to say that opportunity is not synonymous with experience in the sense in which the latter word has been used heretofore in this lecture. In that sense experience is the stored-up knowledge that comes from reflection upon the conditions and events that opportunity has brought to our notice. Reflection upon what we have seen or had a part in is a necessary factor of experience that is to be of value in the future. A much respected brother officer said to me many years ago: "Most people hate to think." The statement may be exaggerated but the underlying idea is true enough. Thinking, reflection, about the matters that opportunity brings to our notice transmutes our observation into real experience that fits us for future occasions. This is as true in the international field as in the naval; in diplomacy as in fleet evolutions.

The place of knowledge of international law in preparation for diplomacy is so obvious that it need only be mentioned. There is one phase of international law that has, however, so much importance in connection with our subject as to be worthy of a few words. I refer to treaties, which do not, perhaps, have all the attention from officers that they deserve. A reference to *The Instruction for the Guidance of Officers in Maritime Warfare* will show how necessary it is to be familiar with treaties in the pursuit of strictly naval duties. In a wider sense our treaties are an epitome of our history and of the evolution of our policies. They show what diplomacy has had in mind in the past. They cover the widest range of subjects that are of interest to us as a nation. They do not cover all, as witness the "Gentlemen's Agreement" with Japan; but generally speaking they are crystallized diplomacy. Our immediate concern as naval officers is naturally with treaties now operative, to be found in *Treaties in Force* and its supplements. As a historical and diplomatic study, however, treaties to which we have been parties but which are not now in force have also a value, and Malloy's two volumes are well worth an occasional hour. Nor need interest be confined to our own treaties. In the past few months I have spent considerable time to my advantage in browsing through MacMurray's two thick volumes entitled *Treaties and Agreements with and Concerning China.*

Every treaty is an international contract whose negotiators perform an act of high diplomatic significance. It is natural to expect that naval officers will rarely be plenipotentiaries for the negotiation of treaties; but they have been in the past and they may be in the future. In ordinary service their observations and reports may well serve to keep the government informed about matters that are likely to become the groundwork of treaties. One such matter is trade, which, in the broad meaning of the word, more than any other one thing forms the subject matter of treaties. By the word trade I mean to include broadly all the agencies for world exchanges, such as banking, transportation and communications, as well as the material things exchanged. We are here in the domain of finance and economics. Now trade in this broad sense, including finance and economics, is a matter into which our professional education does not enter. Yet it lies at the very root of international relations; it is the constant preoccupation of diplomats and governments; perhaps it is not too much to say that on no other one thing does the balance between peace and war so vitally depend. Economic disputes soon become political, and in my opinion no greater nonsense has been uttered of late than the attempt to differentiate between economic and political predominance, of which we have heard not a little within the past few months.

It would be going far to advise officers to make a deep study of finance, economics and the laws of trade in order to prepare for a very improbable chance to employ such knowledge in diplomatic duty. But every intelligent citizen should have some knowledge of these subjects, and we hold ourselves as being in the intelligent class. The knowledge can do no harm, even if it only serves to give a broader and more understanding outlook on the world.

Although somewhat removed from the immediate subject of the lecture, you will perhaps pardon reference to a personal experience that opened my eyes to the advantages of knowledge not confined to strictly naval limitations. When it fell to me to become Military Governor of Santo Domingo, events so shaped themselves that the entire executive and legislative functions of government rested in my hands. My prob-

lems were principally those of civil administration and civil policy. If I had known more about finance and economics I should have been spared many anxious hours. Often and often I wished that my leisure hours in previous years had been less filled with novels and more with what would have been of inestimable value in fitting me for my responsibilities for the welfare of a nation of nearly a million people.

It may seem to you that undue stress has been laid upon a phase of the work of naval officers that is not usual—one that may never come to any of you; that there has been a lack of proportion in its presentation. That may, indeed, be true, for the temptation is great to let one's subject loom large in the preparation of a lecture, but if true it is not by intention; for I think that the naval mission in the life of the naval officer is his all-important mission—that, however successful in endeavor outside of strictly naval lines, if he fails of complete success within them he falls short of the professional goal. I hope you will agree with me, upon reflection, that, with the exception of trade, the other high points mentioned in self-preparation for diplomatic work are all more or less essential features of a naval officer's mental and intellectual equipment—a knowledge of our own history, traditions and policies, and of those of other nations; the necessity to apply thought to opportunity and observation in order to crystallize them into useful experience, and a knowledge of international law and treaties. That these are useful and requisite in diplomatic work simply adds to them another interest; it does not mean that naval officers must go into broad and unknown fields of attainment in order to prepare for a possible chance of usefulness that probably never will arise. Of trade, even, I am sure none in this audience would take pride in asserting entire ignorance.

During the preparation of this lecture the thought has arisen time and again that the officers and men of the Navy are in a very real sense doing diplomatic work daily in so far as they meet foreigners—doing it well or ill as they represent well or ill American standards. Any American abroad is representative in a sense; naval officers, and enlisted men too, are official representatives in a way they cannnot escape if they would. The diplomacy they exercise in routine daily life will be unconscious. It will not be in the way of outstanding incidents, nor recorded in international archives, but each act touching a foreigner will be an infinitesimal element of the sum total of our foreign relations, as the individual drops of water make the ocean. In all probability it will be given to none of us to be a Foch of diplomacy, but we may all give daily and worthy service as privates. Perhaps this may seem a trivial conclusion to a subject of some weight; my excuse is the persistent recurrence of the thought in my mind.

Adventures *of* "Old Glory"

By WILLIAM E. BEARD

The flag of the United States, adopted June 14, 1777, was thereafter in the Revolution thirteen stars and thirteen stripes. The War of 1812 was fought under a flag of fifteen stars and fifteen stripes. Effective July 4, 1818, the original number of stripes, thirteen, was restored, and the number of stars was made to depend upon the number of states. The flag of the Mexican War bore twenty-nine stars; that of the Civil War, thirty-one to thirty-five; of the Spanish American War, forty-five, and of the World War, forty-eight.

Displayed in battle for first time. The United States flag was displayed in battle for the first time on August 3, 1777, at Fort Stanwix, or Fort Schuyler (the present site of Rome, New York), by the command of Colonel Peter Gansevoort on the appearance of a force of British, Tories and Indians led by Colonel Barry St. Leger, who was acting in concert with Burgoyne in the latter's ill-fated invasion of New York. The record reads: "Aug. 3d. Early this morning a Continental flag made by the officers of Colonel Gansevoort's regiment was hoisted and a cannon levelled at the enemy camp was fired on the occasion." The improvised flag continued to flaunt a defiance to St. Leger's blood curdling threats, though the fort was closely beset and an expedition commanded by Gen. Nicholas Herkimer failed, after a furious woodland battle, to relieve it. The siege was not raised until August 22, 1777, when the enemy decamped on the approach of an American brigade led by Arnold. The brave Gansevoort died in 1812 still remembered as "The hero of Fort Schuyler."

Flag's first salute from a foreign power. The first salute for the flag from a foreign power was given by the French Admiral, La Motte Piquet, on February 14, 1778, in Quiberon Bay on the coast of France, the flag saluted being that of John Paul Jones' famous ship, *Ranger*.

Ranger, 13th. February, 1778,
off Quiberon.

My Dear Sir: You will confer a singular obligation upon me by presenting my respects to the French Admiral whom I mean to salute with thirteen guns under American colours provided he will accept the compliment and return gun for gun—this proposal I hope will be the more acceptable as it may be a prelude to future amity between the United States and his court.

I shall be happy to see you here as soon as possible after you have the Admiral's answer; meantime pray excuse this trouble.—

I am, my dear sir, with sentiments of esteem and respect, Your very obliged and obedient
Most Humble servant,
Jno. P. Jones.

(William Carmichael,
American Representative
at Quiberon.)

Replying to Jones' proposal the French admiral offered to return a salute of nine guns, four less than the number given, or the salute he was authorized to give an admiral of Holland, or any other republic. "After a very particular inquiry on the 14th, finding that he really told the truth," Jones' statement says, he decided to accept the nine gun salute, and after sunset that day, the movements of the *Ranger* being delayed by contrary winds, the guns of the historic sloop-of-war roared thirteen times in honor of the French admiral, the latter's fleet replying with nine guns.

The flag carried around the world. The flag was first carried around the world by the *Columbia*, the ship whose name is perpetuated by the great river of the northwest. The vessel, commanded by Captain John Kendrick, and the sloop *Washington*, Captain Robert Gray, sailed from Boston September 30, 1787, doubled the Horn and spent the winter of 1788-1789 in Nootka Sound. Gray, now in command of the *Columbia*, then sailed for Canton, China, with the furs they had collected, selling the furs there and taking on a cargo of tea. The *Columbia* reached Boston August 10, 1790, "having

carried the thirteen stars and thirteen stripes for the first time around the world."

Flag hoisted in Louisiana December 20, 1803. Writing from Martha's Vineyard, near Natchez, Miss., September 27, 1843, to present to the editors of the Concordia, La., *Intelligencer* some matters connected with the history of Louisiana, John F. H. Claiborne, said:

> On the 17th of September, 1803, Mr. Jefferson communicated this treaty [the Louisiana Purchase treaty] to the Senate. It was speedily ratified, and Wm. C. C. Claiborne, then Governor of the Mississippi Territory and General James Wilkinson were appointed to receive the provinces, which were still in the hands of Spain, owing to the non-compliance of France with certain stipulations of the treaty of St. Ildefonso. The government of Madrid threw every obstacle in the way of the American diplomatists, and its Minister at Washington, the Marquis de Caso Yrujo, remonstrated earnestly against the transfer, in the name of his King, as being in direct contravention of the treaty of St. Ildefonso, and upon the ground that the title to Louisiana was still in the Crown of Spain. Mr. Madison [Secretary of State] communicated these remonstrances to M. Pichon, ambassador from the French republic, and received from him every assurance that his government guaranteed the treaty, and would allow no obstacle to its execution. The impression generally prevailed that the Spanish authorities would resist the delivery of the province, and, on the 24th October, 1803, Mr. Madison thus wrote to Mr. Monroe, "It remains to be seen how far Spain will persist in her remonstrances, and how far she will add to them resistance by force. Should the latter course be taken, it can lead to nothing but a forcible for a peaceable possession. Having now a clear and honest title, acquired in a mode pointed out by Spain herself, it will, without a doubt, be maintained with a decision becoming our national character, and required by the importance of the object."
>
> In pursuance of the resolution so calmly, yet firmly expressed in this dispatch, the American Commissioners were instructed to get possession at all hazards; to seize New Orleans by a *coup de main*, if necessary, and for this purpose the regular troops at Fort Adams were placed at their disposal, and the militia of Ohio, Kentucky, Tennessee, and the Mississippi Territory ordered to be in readiness. A detachment of troops from Tennessee descended to Natchez, eager for the contest, for the whole west was embittered against the Spaniards, owing to the exactions levied on its commerce. No occasion, however, arose for its services. Before the Commissioners reached New Orleans, the Spanish authorities had surrendered the province to M. Laussat, colonial prefect and commissary of the French Republic. On the 20th December, 1803, he formally transferred it to the American Commissioners, and the flag of the Union was, for the first time, unfurled in the city of New Orleans.

St. Louis under three flags in one day. The formal transfer of Upper Louisiana did not take place until nearly three months after the raising of the United States flag in New Orleans. When the time arrived for its tranfer to the United States, the transfer of sovereignty from Spain to France remained to be made, and Captain Amos Stoddard, U.S.A., who had been assigned to receive the country from France, was delegated by the latter country to represent it in the transfer from Spain. The ceremony took place at St. Louis. During the morning of March 9, 1804, the Spanish flag was hauled down and that of France was raised. Major H. M. Chittenden's account says:

> The people, although conscious that the sovereignty of France was being resumed but for a moment and simply as a necessary formality in the final transfer, nevertheless could not restrain their joy at seeing float over them once more the standard which even forty years of the mild sway of Spain had not estranged from their memories. So deep was the feeling that when the customary hour came for lowering the flag the people besought Captain Stoddard that it might remain up all night. The request was granted and the flag of France floated for twenty-four hours over the city from which it was about to be withdrawn forever.

The following morning, March 10, 1804, the French flag was lowered and in its place that of the United States was raised, waving for the first time over Upper Louisiana.

Waves from old world fortress. The Stars and Stripes waved for the first time from an old world fortress on April 27, 1805. A half dozen marines, a handful of cannoneers, and some thirty odd Greeks, led by Lieutenant Presley N. O'Bannon, U. S. Marine Corps, a Kentuckian, stormed a battery defending the city of Derne, Tripoli, and captured it. O'Bannon planted the American flag upon the ramparts of Derne, and turned the captured battery on the fleeing enemy. O'Bannon's ashes now rest in the state cemetery at Frankfort, Kentucky. The historic engagement in which he figured was the climax of the activities of General William Eaton in Tripoli.

Francis Scott Key's "Star Spangled Banner." At sunrise, September 13, 1814, the bombardment of Fort McHenry, Baltimore, by the British fleet began, to continue for twenty-five hours, the original "Star

Spangled Banner," which floated over the fort, being cut eleven times by British shot. It was from the deck of one of Ferguson's Norfolk packets, in plain view of Fort McHenry, that J. S. Skinner, American agent for flags of truce, and Francis Scott Key, Washington attorney, present to secure the release of Dr. William Beans, who had been taken captive on the British retreat from Washington, witnessed through an anxious day and night "the rocket's red glare" and "the bombs bursting in air." "And," says an account written by Mr. Skinner over seventy-five years ago, "the song [the national air] which was written the night after we got back into Baltimore, in the hotel then kept at the corner of Hanover and Market Streets, was but a versified and almost literal transcript of our expressed hopes and apprehensions through that ever memorable period of anxiety to all, but never despair. Calling upon its accomplished author the next morning he handed it to the undersigned, who passed it to the *Baltimore Patriot,* and through it to immortality."

Raised over the Halls of the Montezumas. During the night of September 13, 1847, General Santa Anna with his troops abandoned the city of Mexico, the castle of Chapultepec, two miles distant, having been stormed and carried during the day by the troops of Pillow's and Quitman's divisions. Early in the morning of the fourteenth, General John A. Quitman marched his column to the grand plaza of the city. While the division was being formed in the plaza, several non-commissioned officers carrying regimental colors made a break for the palace to hoist them there. "No, my brave fellows," cried the General, "take back your colors. The first flag on that palace must be the flag of our country."

Captain Benjamin Stone Roberts, a Vermonter, of the Mounted Rifles, who had led the advance of Quitman's storming party at Chapultepec, was directed by General Quitman to bring forward a stand of national colors and plant them on the palace. The flag first raised over the "Halls of the Montezumas" was that which had been carried at Chapultepec by Quitman's storming party. At precisely 7:00 A.M., September 14, 1847, it was saluted by the division, and an hour later, the commander-in-chief, General Winfield Scott, accompanied by a brilliantly accoutred staff and escorted by cavalry, entered the city with the band of the Second Dragoons playing "Hail Columbia." General Scott's staff that day included among others Mansfield Lovell and Cadmus M. Wilcox, both lieutenants, later to become major generals in the Confederate Army.

Jurisdiction of country follows flag. In 1858, England's activities against the slave trade were extended to the waters about Cuba, the only market remaining to the slave trader, and in the course of operations in that quarter American merchant vessels were repeatedly halted by British gunboats, some of them by gun fire, boarded and searched by British officers. By a treaty of 1842, the United States and Great Britain were committed to the maintenance of a blockade against slavers along the coast of Africa, but that treaty contained no provision for the search of each other's ships. The action of the British gunboats resulted in a storm at Washington. There was vigorous agitation in Congress, remonstrances were addressed to the British government against these violations of American rights of sovereignty, and a naval force was ordered to Cuban waters with directions to protect all vessels of the United States on the high seas from search or detention by war ships of any other nation.

On June 16, 1858, the United States Senate in a resolution regarding the "British outrages," announced the principle:

> Resolved (as the judgment of the Senate) that American vessels on the high seas, in time of peace, bearing the American flag, remain under the jurisdiction of the country to which they belong, and therefore any visitation, molestation, or detention of such vessel by force, or by the exhibition of force on the part of a foreign power. is in derogation of the sovereignty of the United States.

The resolution was one which had been prepared by the Senate Committee on Foreign Relations, and was introduced by Senator James M. Mason of Virginia, who, it will be recalled, three years later, with John Slidell, was taken from the British mail steamer *Trent* by officers of the U.S.S. *San Jacinto,* while en route to Europe as Confederate Commissioners respectively to Eng-

land and France, but released on remonstrances from Great Britain.

The protests of the United States in 1858 put a stop to the searching of American ships by British officers, but the Senate resolution was revived in 1873, and cited by President Grant, when the Spanish gunboat *Tornado* seized the *Virginius* and carried her into Santiago, where a number of her passengers and crew were summarily executed.

"Star of the West's" flag fired on. Six days after the formal secession of South Carolina from the Union, Major Robert Anderson, commanding the post, suddenly tranferred the garrison of Fort Moultrie, Sullivan's Island, Charleston harbor, to Fort Sumter, out in the harbor. The move was the result of his fears that his inadequate force, two companies of the First U. S. Artillery, would be attacked by South Carolina troops. Early in January, by direction of Lieutenant General Winfield Scott, general-in-chief of the Army, the chartered steamer *Star of the West* was secretly dispatched from New York to Charleston carrying provisions, ammunition and 200 recruits to reënforce the garrison of Fort Sumter. Just before day on the morning of January 9, 1861, the relief vessel while lying off the bar at Charleston harbor was discovered by a steamer on guard there. The latter, receiving no answer to her signal lights, promptly steamed up the main ship channel of Charleston harbor, firing rockets and burning lights as she went. The *Star of the West* crossed the bar and followed her in.

When the *Star of the West* had arrived within a mile and three-quarters of Fort Sumter, a shot across her bow, a signal to stop, was fired by a masked battery near the north end of Morris Island, about five-eighths of a mile distant. The *Star of the West* had entered the harbor with the American flag flying from her flagstaff, and at the sound of the shot a full sized garrison flag was displayed at her fore, the vessel meanwhile, however, proceeding on her way. The masked battery, near which was flying a red palmetto flag, then began firing at the vessel. Most of the cannon balls passed over the *Star of the West,* one just missing the machinery, another striking a few feet from the rudder, while still another, a ricochet shot, struck the vessel in the forechains two feet above the water line. Deeming it impossible to take his command to Fort Sumter, Lieutenant Charles R. Woods, Ninth Infantry, commanding the relief expedition, ordered the ship to turn about and get out of the harbor before her retreat was cut off. The *Star of the West* reached New York without mishap three days later.

The War Department at Washington characterized the shots of the Morris Island masked battery at the *Star of the West* as "an act of war." On the other hand Governor Francis W. Pickens of South Carolina maintained that the relief expedition was a hostile act toward South Carolina, and that the shots of the battery were entirely justified.

Tragic lowering of the flag at Fort Sumter. On Sunday afternoon, April 14, 1861, Major Robert Anderson and the garrison of Fort Sumter marched out of the works with colors flying and drums beating, bringing away company and private property, and saluting the flag of the fort with fifty guns as it was being lowered. The defenders of the fort had capitulated the day before after enduring the bombardment of the Confederate batteries about Charleston harbor for thirty-three hours. Generous terms had been granted by General G. T. Beauregard, Confederate commander, in recognition of the little garrison's gallant defense. In connection with the bombardment the casualties on both sides had been trivial, but in the salute to Fort Sumter's flag as it was being hauled down, the premature discharge of a gun and the explosion of a pile of cartridges resulted in the death of one of the United States soldiers, the first fatality of the Civil War, and the wounding of five others. General Beauregard ordered the dead soldier buried in the parade of Fort Sumter with all the honors of war, and soldiers of the Palmetto Guard (South Carolina) prepared an appropriate marker for his grave.

"Old Glory" raised over Nashville. On Tuesday morning, February 25, 1862, a gunboat and a number of transports loaded with troops of Nelson's division of the Army of the Ohio reached Nashville; Fort Donelson,

a hundred miles down the Cumberland, the main defense of Tennessee's capital, having surrendered to General U. S. Grant nine days before. When the transports landed at Nashville, the Sixth Ohio Volunteers disembarked and marched up Cedar Street to the state capitol, where General William Nelson, in the name of the United States, took military possession of the building at 8:45 o'clock. A few minutes later a United States flag floated from the flagstaff of the capitol. The first flag hoisted was that of the Ohio regiment, but directly it was hauled down and in its place went up "Old Glory." "Old Glory" was so named by Captain William Driver, Salem, Massachusetts, sea captain, in 1831, when this particular flag was presented him by a company of ladies in recognition of an act of kindness and was hoisted by him on his ship, the brig *Charles Doggett*. Captain Driver, at the time of the occupation of Nashville, retired from the sea and residing in the Tennessee city, had sacredly preserved his flag during the exciting times of secession and had the distinction of raising it with his own hands over the state house. Nashville thus became the only city over which the original "Old Glory" ever floated as an emblem of war.

Stars and Stripes restored to Fort Sumter. Fort Sumter, taken by the Confederates on April 14, 1861, was successfully defended by them, despite the most vigorous efforts to recapture it by the land and naval forces of the United States, until February 17, 1865, when it was evacuated. In honor of the restoration of the Stars and Stripes to the fort, by that time reduced by repeated bombardments to a mere earthwork, it was ordered that on Washington's birthday, 1865, a national salute be fired at West Point, and at every fort, arsenal and army headquarters in the Union. General Order No. 50, Adjutant General's Office, Washington, issued March 27, 1865, in further celebration, provided:

> That at the hour of noon on the 14th day of April, 1865, Brevet Major General Anderson will raise and plant upon the ruins of Fort Sumter, in Charleston harbor, the same U. S. flag which floated over the battlements of that fort during the rebel assault, and which was lowered and saluted by him and the small force of his command when the works were evacuated on the 14th day of April, 1861.
>
> That the flag, when raised, be saluted by 100 guns from Fort Sumter, and by a national salute from every fort and rebel battery that fired upon Fort Sumter.

The order further provided for the delivery of a public address by the Reverend Henry Ward Beecher, as a part of the ceremonies.

American flag raised over Santiago. The city of Santiago, Cuba, namesake of the patron saint of Spain, became the scene of the military operations of the Spanish American War on the western hemisphere when, on a beautiful May morning (the nineteenth), the Spanish fleet, commanded by Rear Admiral Pascual Cervera, which had sailed from the Cape Verde Islands on April 29, 1898, anchored in the harbor there. Blockade of the mouth of the harbor by the American fleet began as soon as the fleet's presence there was discovered and stirring events began to occur: Lieutenant Richmond Pearson Hobson's effort to seal the exit of the harbor with the *Merrimac;* the landing of Major General W. R. Shafter's army of 17,000 officers and men at Daiquiri; a fight at Las Guásimas and battles at San Juan Hill and El Caney. On July 3, in obedience to orders from Havana, the Spanish fleet went out of the harbor, its admiral leading the way in his flag ship, and was forthwith destroyed by the American warships. On July 17, the city of Santiago was surrendered. Of the events attending the lowering of the Spanish flag at Santiago, where it had waved so long, the journal of Lieutenant José Müller Y Tejeiro, second in command of the Spanish naval forces in Santiago province, reads:

> July 17 [1898]—In conformity with the terms of the capitulation, the surrender of the city to the American army took place today. At 9 A.M. the Spanish flag was hoisted on Punta Blanca Fort and saluted by twenty-one guns; shortly after it was lowered. At 9:30 Generals Toral and Shafter, commanders-in-chief of the Spanish and American forces, respectively, the latter accompanied by his staff and many of the commanders and officers of the American fleet, witnessed the marching by, under arms, of a company of the former, representing all the Spanish forces, as it was difficult to assemble them. The American forces presented arms and beat a march.
>
> The heights of Conosa were the theater of this sad scene. The morning was very beautiful, and the clearness of the sky formed a singular contrast with the gloom that enwrapped the spirit of our troops. When the march was ended, the

American forces remained at their posts, while ours left the trenches and proceeded to the city for the purpose of depositing their arms.

The forces of the Socapa and Punta Gorda were taken by sea, in the steamer *Reina de Los Angeles,* to Las Cruces pier, and from there they marched to the Artillery Park, where they delivered arms and ammunition. Without them, they proceeded to the camp outside of the city, where all the forces were to assemble until the arrival of the vessels which, as agreed upon, were to convey them to Spanish soil. The other troops did the same thing, after depositing their arms at points designated beforehand.

The troops having evacuated the city, 1,000 men of the United States Army entered it, hoisting the flag of that nation at the Palace and Morro Castle. It [the flag at the Palace] is the only flag that has been raised in the city. No insurgent forces, nor individuals belonging to the same have entered the city with arms. The situation remained the same till the day when the army embarked for Spain.

The American flag was raised over the governor's palace in the city exactly at noon, in the presence of a crowd estimated at 12,000, the American troops participating in the ceremony being the Ninth Infantry and a squadron of the Second Cavalry. Capron's Battery fired a salute of twenty-one guns as Captain William H. McKittrick hoisted the Stars and Stripes over the palace, and the Sixth Cavalry band played the national air.

Surrender of Manila. The United States headed for the acquisition of its Philippine question when on April 24, 1898, John D. Long, President McKinley's Secretary of the Navy, cabled Commodore George Dewey at Hong Kong to proceed at once to the islands and capture or destroy the vessels of the Spanish fleet. One week later the future admiral was able to send a message to Hong Kong to be cabled to Washington announcing that the orders of April 24 had been executed to the letter. However, it was not until August 13, the day after the protocol of agreement embodying the terms of peace between Spain and the United States was signed, that the Stars and Stripes succeeded the flag of Spain over Manila. The news of the city's capture was conveyed in the following official dispatch:

Manila, August 13. Secretary Navy, Washington: Manila surrendered today to the American land and naval forces, after a combined attack. A division of the squadron shelled the forts and entrenchments at Malate on the south side of the city, driving back the enemy, our army advancing from that side at the same time. City surrendered about 5 o'clock, the American flag being hoisted by Lieutenant Frank H. Brumby. About 7,000 prisoners were taken. The squadron had no casualties; none of the vessels were injured.

On August 7, General Wesley Merritt and I formally demanded the surrender of the city, which the Spanish General refused.

Dewey.

Lieutenant Brumby, who raised the flag, was Commodore Dewey's flag lieutenant.

Carried to North Pole by Peary. "Indian Head Harbor, via Cape Ray, N. F., September 6, 1909. To Associated Press, New York: Stars and Stripes nailed to North Pole. Peary." Robert E. Peary, civil engineer, U. S. Navy, reached the North Pole, a goal he had sought for twenty years, on April 6, 1909, for which achievement the United States government gave him the rank of rear admiral to date from the day of his discovery of the Pole, with the highest retired pay of the grade under the existing law. He was also given the thanks of Congress.

The flag which Peary carried to the Pole was a silken American flag, one given him by his wife fifteen years before, and had been carried by him on all his polar expeditions after he had received it. At each of his "farthest norths," he had left a fragment to mark the spot. By the time it reached the Pole, his account says, the flag was "somewhat worn and discolored."

Four other flags shared the distinction with the Stars and Stripes of going to the North Pole and waving for a space over the icy wastes. They were the Delta Kappa Epsilon colors, the World's Ensign of Liberty and Peace, the Navy League flag, and the Red Cross flag.

With the explorer at the time were Matthew Henson, colored, and four Eskimos. When he planted the American flag on the top of the world, Peary records that Henson, under his instructions, led the Eskimos in three rousing cheers, following which ceremony the discoverer shook hands all around with his companions.

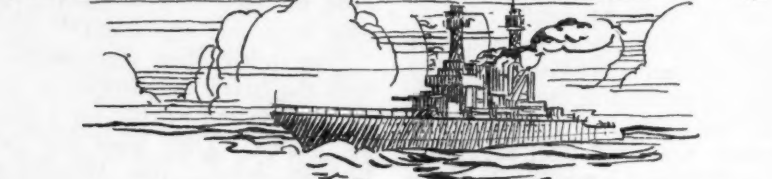
Between the ice blocks of a pressure ridge he deposited in a glass bottle a diagonal of his travel worn flag with records of his discovery and claims to possession of the entire

region in the name of the President of the United States.[1]

Waves over parliament building. On April 20, 1917, the flag of the United States waved from the victory tower of the parliament building in London, being the first foreign flag to fly there. On that day the British people and the Americans then resident in London celebrated the United States' partnership in the World War, entered into on April 6. A religious service was held at St. Paul's Cathedral, attended by King George, Queen Mary, other members of the royal family of England, the official heads of the British government, and an immense congregation. There was a great display of American flags in London, and in other cities and towns as well. "Old Glory" floated that day not only from the tallest spire of the parliament building but also from all government buildings in the British capital.

Even before that formal welcome of the United States into the partnership of blood and death and ultimate victory, the country's flag had made its appearance informally upon the battlefields of western Europe, history recording that in the British assaults beginning on April 9, 1917, at least one American flag was carried up the slopes of Vimy Ridge in the ranks of the Canadians.

(1)—On May 12, 1926, at 1 A.M., (Norwegian time), the Stars and Stripes again became associated with polar history when the American flag, the Norwegian flag and the Italian flag were dropped by the Amundsen-Ellsworth party from the Italian built dirigible *Norge* in the flight over the top of the world from Kings Bay, Spitzbergen, to Teller, Alaska.



Discussion

A Destroyer Leader for the U. S. Fleet

(See page 1111, June, 1926, PROCEEDINGS)

MAURICE PRENDERGAST.—*Introductory.*—The June, 1926, issue of the PROCEEDINGS contained a very interesting contribution, by Captain Taussig, suggesting the design of "A Destroyer Leader for the United States Fleet." In subsequent issues of this journal, the discussion pages have embodied comments upon the "Taussig Design," and among them were a few notes by the present writer.

It is desired to review the whole subject of destroyer leader design in a new light, and according to principles more rational than those now applied to this type of war vessel. Does the present type of leader, the glorified destroyer, answer the purpose for which it is designed—that is, the leadership of destroyers? The answer seems to be that it does, indifferently well. Does Captain Taussig's design display any marked advance over present practice in leader design? While admitting that his suggested vessel possesses certain merits, it does not appear to be an entirely satisfactory proposition. It is a kind of halfway ship—a little smaller than a light cruiser, and a little bigger than a destroyer. What would be an *ideal* design for a destroyer leader? To answer this last query, we must try to imagine what the correct principles should be, governing the design of leaders. What is wanted, is neither a trimmed-down cruiser, nor an inflated destroyer, but an entirely new type of vessel, expressly and specifically designed to exercise the functions of sea-leadership in the very highest sense.[1]

As a mere layman, I do not profess to attempt the thankless task of teaching naval officers the details of their profession. All I desire to do, is to invite them to break away from conventional ideas regarding a particular class of warship, and to consider on its merits an entirely new conception. The type of leader I am going to describe may, at first sight, appear to be bizarre and extravagant. But I hope to convince my readers that the suggested vessel is merely the logical outcome of considered principles, and is not based upon a quest for the merely sensational.

I am not attempting to lay down the law to that eminent body of talent, the construction corps of the U.S. Navy, for whose skill in warship designing I have the very highest respect. I am sure any officer of the corps could design a far better leader than the one I am now proposing. I cannot even guarantee, that if my ship were built, she would float the right way up. The diagram, reproduced with this article, has been worked out with some attention to detail. None the less, it is to be regarded only as the graphical expression of certain ideas, and not as a construction plan. Not all the ideas suggested may be tenable in practice; not all the features embodied may be acceptable to American tastes. Because the accompanying drawing is simply an "idea-diagram," I am going to say nothing whatever about the technicalities of dimensions, displacement, speed and so on.

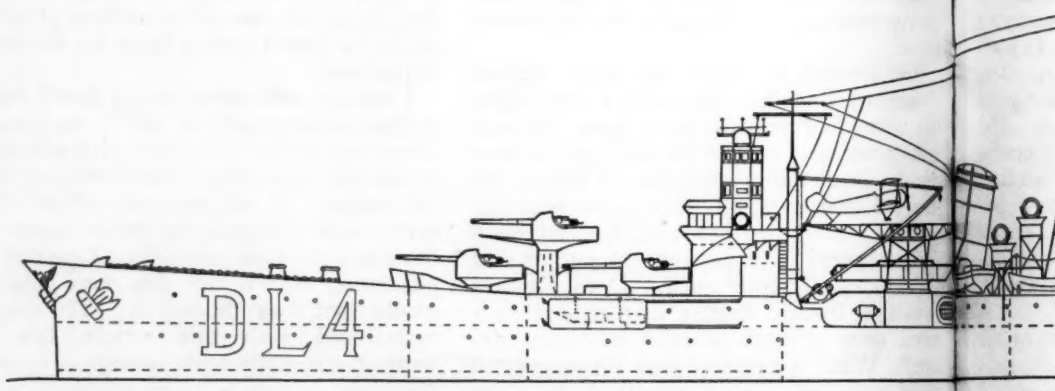
Suggested Principles of Leader Design.—We can take for granted all that Captain Taussig, and other writers, have said, regarding the necessity that a destroyer leader should provide adequate quarters for the of-

[1] After the final draft of this article was completed, I received the November issue of the PROCEEDINGS, wherein Captain Taussig makes his rejoinder to my criticisms of his leader design. He may be surprised to find, that I have obstinately persisted in giving to my "Ideal Leader" certain features to which he has objected. I would not have him think that I have passed over his good advice in a kind of contemptuous silence. I am sincerely obliged to him for the courtesy with which he has received my comments. My leader design embodies features which I suggested in the September discussion pages. Captain Taussig's objections to these features I can only deal with, at this late stage, by the means of additional foot-notes.

ficer in command of a flotilla, and his staff. The leader is, of course, a petty flagship; and of all flagships great and small, she has the greatest need of being designed for exercising the functions of leadership. Why? Consider what type of war vessel it is, that she leads. The destroyer—about the fastest and the most fragile of all fighting ships. Thanks to their stout protection, capital ships may extricate themselves, in battle, from a "tight corner," as the German battle cruisers did at Jutland. But destroyers? Seven wrecks, lying in the Santa Barbara Channel exemplified how, even under peace conditions, swift and almost instantaneous disaster may attend an error in the leadership of destroyers.

much to say, that, under action conditions, destroyer leadership may present problems moving twice as fast, and being twice as complex, as those arising from the command of a battle squadron?

There is, finally, the worst possible case to consider—that of opposing destroyer flotillas charging against each other, into the "No Man's Land" between the lines of battleships, as happened at Jutland. Here, the combined speeds of the opposing destroyers may result in a "tactical rate of change" at the delirious speed of sixty to sixty-eight knots. The commander-in-chief of the battle squadron can be conveyed into action, in a flagship that does not vary materially from the normal battleship type. But if



A SUGGESTED DESIGN TYPE OF DES

Contemplate on the one hand, a squadron of eight battleships, going into action at a battle speed of eighteen to nineteen knots. And, on the other hand, consider a flotilla of sixteen destroyers—the average war strength—also going into action at a speed of thirty to thirty-four knots. What may be called "the rate of change in tactical circumstances" nearly 100 per cent faster for the destroyers than it is for battleships. He who leads the destroyers will have to think, decide and act, tactically, twice as fast as the admiral in command of the battle squadron. Add to this, the problem of the more numerous units under command—sixteen destroyers as against eight battleships. Again, make allowance for the more rapid handling and maneuvering power of the smaller torpedo craft, as compared with the big and cumbrous capital ships. Is it too much to say, that, under action conditions, destroyer leadership may present problems moving twice as fast, and being twice as complex, as those arising from the command of a battle squadron?

There is, finally, the worst possible case to consider—that of opposing destroyer flotillas charging against each other, into the "No Man's Land" between the lines of battleships, as happened at Jutland. Here, the combined speeds of the opposing destroyers may result in a "tactical rate of change" at the delirious speed of sixty to sixty-eight knots. The commander-in-chief of the battle squadron can be conveyed into action, in a flagship that does not vary materially from the normal battleship type. But if there ever was a need for a specialized "command-ship" it seems to be in the case of the destroyer leader.

The officers commanding destroyer flotillas will not have a very fortunate portion, during the course of a fleet engagement. They will have many things to do, and bear in mind. At one moment, they may be required not to let their destroyers foul the range with funnel smoke. At another moment, they may be called upon to do exactly the opposite, and put down a big smoke-screen, for protective purposes. The destroyers will have to harmonize their movements, and accommodate their dispositions, to suit those of their own battleships. They must keep a watch upon the hostile battle-line, with a view to launching a torpedo attack. They must also stand ready to rush out and repel any attack made by the

enemy's destroyers and light cruisers. They may even be required to deliver a torpedo attack through a heavy smoke screen. On emerging from this murky pall, the commanding officer of the flotilla may find the enemy at close range. In this event, he will have to make the most rapid estimate he can of the situation just revealed to him, and decide how and where he is going to attack.

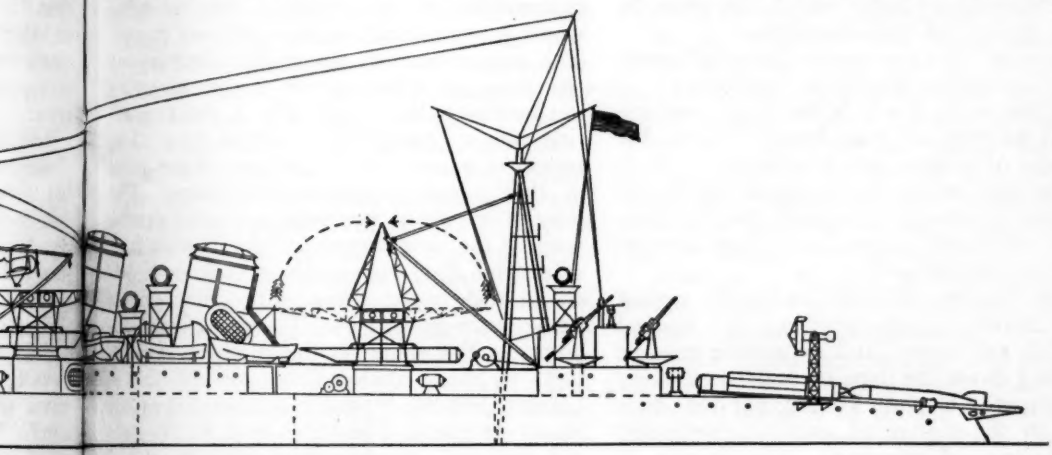
On similar lines, there is the problem of night actions, where one almost runs into a hostile flotilla, squadron or fleet at close range—a range even close enough for destroyers to use ramming tactics against each other, as happened in the Dover Straits during the World War. In such cases, there may be no time for signals. The leader, by her movements and conduct alone, must show to her destroyers what line of action she is going to pursue.

The present practice is, of course, to take the average contemporary destroyer design, to enlarge it a bit, to add an extra gun or two, and there you have your leader. This policy in design may serve its purpose well enough, but is it good enough? Destroyers are the "storm-troops of the sea," and whatever vessel leads them, should express the idea of attack of the offensive *à l'outrance*. What in the world then has a destroyer leader got to do with astern fire, or with any guns at her stern whatever? None, that we can see. Unless, of course she is going to follow the example of the Duke of Plaza Toro, who "led his regiments from behind, because it was far less exciting."

To carry out a torpedo attack, in daylight, against a hostile battle fleet, and in the face of a murderous and scientifically controlled fire, will require nerve and stamina of the highest order. The knowledge that the leader is in the van, and that she can only attack in one direction, *forward,* will give the whole of the flotilla charging with her, the sense, the moral support, and the derived courage, arising from the feeling of being really *led,* and not merely escorted, into action.

Summing up the foregoing considerations, it is proposed that the following should be true and guiding principles underlying the design of any destroyer leader type:

A. That all provision possible should be made for giving the commanding officer of the flotilla every convenience and aid, for exercising the faculty of rapid command. This entails that he should have a clear and undisturbed field of vision to all points of the compass.



TYPE OF DESTROYER LEADER

B. That it is the duty of the leader to exhibit to her destroyers the idea and the performance of *attack*. Her design should exemplify this principle in the highest possible degree. Therefore, her weapons should, as far as is possible, be disposed to engage an enemy *ahead*. There is to be no astern fire, in a relative sense, because that embodies the subversive idea of retreat. The line of the leader's attack is to be forward —at the enemy!

The Application of the Above Principles to an Actual Design—It will be observed that in the design now presented (and re-

produced herewith), all the guns are massed forward, and there is no astern fire whatever, save from anti-aircraft guns. The system of gun distribution adopted is, of course, that used in the British battleships of the *Nelson* class. Admitted that this form of battery-planning is not admired by certain U. S. officers. It must be realized and clearly understood, that the *Nelson* and *Rodney* are to be to the British battle squadrons what the leaders are to the destroyer flotillas. That is, the two *Nelsons* are to be "battle line leaders," and guide-ships to the fighting lines of capital ships. The massing of their three triple turrets at the bows is the logical outcome of their *métier* as vanguard vessels. If this principle is correct for the leadership of battle squadrons, then the same system of gun-distribution is (on a lesser scale), the true method by which guns in flotilla leaders should be distributed.

At this point, it will be the more convenient, if we give our ideal leader a name, for the sake of convenience in reference. Shall we christen her the *Canandaigua* (D. L. 4) and then proceeded to explain how the principles displayed above have been assimilated into her design?

Hull Design—Efficient leadership cannot be exercised if you have one eye bunged up with salt water, and a periodic cascade slopping down the nape of your neck every half minute. Captain Taussig has done very well on the matter of comfort conducing to efficiency of command. Accordingly, if the commanding officer of the flotilla is "going to sit up in a conning-tower, bossing eight hundred men," it is essential that he should be given a clear field of vision. As for the causes of "interference" with command, officers with practical experience of destroyer work can, no doubt, speak with authority on such a matter. As far as I can see, the three chief causes of such "interference" appear to be (1) head seas, and spray; (2) funnel smoke; and (3) the hoisting and lowering of flag signals.

To cope with (1), it appears vital that the hull should be developed to the highest possible freeboard forward, and that the positions of command should be raised above the water-line to the highest position consistent with ship-stability. In the *Canandaigua*, the hull is gradually sheered from the stern to the break of the forecastle, and from the after end of the forecastle, right up to the eyes. To rid the bridges of smoke-interference, the funnels have been brought amidships and as far aft of the bridges (and positions of command) as is possible. Signal interference is a matter we will discuss a little later on.

Gun Positions—It has been previously argued, that the main gun positions should be massed forward. The gun-distribution in the *Canandaigua* permits various combinations of single, double and triple mounts. At one extreme, we have three six-inch, singly mounted, which battery we consider is too heavy, and slow firing for flotilla work. At the other extreme, we have a possible armament of nine twelve or fourteen-pounders, in three triple mounts. This would certainly give us rapidity of fire (and rapid consumption of ammunition), but the guns would be quite inadequate in ranging power. The happy medium would be a battery of five guns, of 5 to 5.5-inch caliber mounted as: positions No. 1 and No. 3, twin; position No. 2 (superfiring), single gun. The types of mounts we show are those used in British and Japanese submarines. The lower (and twin) positions are to be on the lines of the twin mounts of the British fleet submarine *X-1*, wherein the guns are mounted so wide apart there is no interference between the gun crews. The superfiring position is the same as the Vickers mount, used in the British submarines of the *L* Classes, and the Japanese submarines of the *Ro-57-59* class. The three-inch A. A. guns are mounted in outboard positions, at the stern, but the caliber selected is open to argument. The view appears to be gaining ground that the two-pounder semi-automatic pom pom, singly, doubly, trebly and even quadruply mounted, is an A. A. weapon better suited to destroyers and leaders than the heavy three-inch mark.

Bridges—This is perhaps the most vital point, and the most delicate and complicated one of the whole design. Here we must station the commanding officer of the flotilla, and his staff, and provide them with the best facilities for the efficient exercise of their duties. We must also provide for the captain of the leader, and navigating staff. Again, we must find room for all the gear and personnel required for gunnery and torpedo control. It may be necessary for the leader to indicate and control "concentration shots" by gun and torpedo fire from part (or the whole) of the flotilla, against a selected portion of the enemy's line. Finally,

there is the complicated question of signals.

The only way in which we can reconcile all these conflicting interests—and it is a very tentative way—is this: We suggest that the forebridges should be built upon the lines of the cabined-in, masthead fire-control tops of the *West Virginia* and *California* types of battleships. The officer in command of the flotilla is to occupy the upper stage, where he will have the most ample field of vision in all directions, and be elevated in a dry position above the waterline. The lower stage of the bridge is to be devoted to the directorscopes, torpedo D.F., etc. The "flush-decker" type of charthouse, and the bridge-wings around it, are for the captain of the leader, navigating and signalling staff. Attention is directed to one small, but interesting feature in the proposed new leader type. It is the provision of blast-screens, to shield the wings of the lower bridge. This detail is copied from the new Japanese cruisers *Furutaka* and *Kako,* whose forward guns are mounted in just the same way as those of the *Canandaigua;* and whose bridge-wings are guarded by curved screens against the blast of the guns when firing on bearings abaft the beam.

Rig—The peculiar, reversed look of the *Canandaigua's* rig may appear objectionable to American eyes. May I explain that the hoisting and lowering of long tacks of signal flags, from yards upon a foremast, has been found to interfere considerably with range-taking, fire control and ship-command. In certain very recent British designs for cruisers, the foremast has been virtually abolished, and all signalling by flag relegated to a tripod mast stepped at the after part of the hull.

Whether a leader could adopt such a rig, with the signalling mast astern, is a dubious point. It appears preferable that the signalling staff should still remain concentrated, as it were, round the feet of the flotilla commanding officer, so that his orders can be put into bunting, Morse or semaphore form, with the least possible loss of time. For, as we have stressed before, destroyer leadership is a "top-gear, hundred-miles per-hour job," akin to the control of a racing auto.

If a signalling mast must still remain located forward, and close to the bridges, the only expedient we can suggest, to dodge the signal interference problem, is the provision of two masts abreast, one to port and one to starboard. These masts might be of the telescopic type, raised and lowered by power, as were the masts in the British *K* class submarines. It would then be possible to raise and use the lee mast only for flag signals. (The diagram shows the port mast about one-quarter raised, and with yards trimmed round to the fore and aft line.) As for the tripod mainmast, this has been purposely used to give a distinctive appearance. In the course of the discussion on Captain Taussig's design one or two critics emphasized the point that the leader should be of absolutely original appearance, so that she could be distinguished easily, by day and by night. And not only this; she should also remain of unique appearance, no matter if she should be somewhat mutilated by gunfire. In the night action of March 21, 1918, a French destroyer—the *Commandant Riviere,* as far as I can recollect—dashed up, torpedoed and severely damaged the British leader *Botha.* The explanation was simply this: The *Botha* had had one of her four funnels shot away, and in her wounded state, she presented quite a reasonable resemblance to a certain big, three-funneled class of German destroyers.

Allusion to German destroyers reminds me that I have purloined one good idea of theirs. Above the range-finder, surmounting the bridges, there is a bar, and upon the bar are mounted colored night recognition lights. This type of pivoted bar was used by the German torpedo craft; it allowed the lights to be swung round toward the point from which the challenge comes, while the color and arrangement of the lights themselves can be varied from night to night.

Machinery—Stepping the funnels amidships, so as to keep the bridges clear of smoke-interference, does of course raise knotty problems in the lay-out of the machinery. The boiler rooms have to be located centrally in the hull, with one engine room before, and one abaft the boilers. Such a grouping of the power-plant seems to predicate electric drive; but I am not competent enough to say if electric drive is suitable or not, for use in high-speed warcraft, like destroyers and leaders. This form of power-transmission is said to confer most remarkable maneuvering qualities upon that ship that employs it. If this is so, then electric drive would be a notable asset in a vessel of the leader type. Despite the increased size of the leader, the electric drive would

bring her maneuvering performance more into harmony with those of the destroyers she leads. Uniformity in handling properties, between the leader and the led, is an asset which should be striven for, in spite of mechanical obstacles. But if electric drive cannot be employed, there is left only the rather objectionable expedient of raising the boilers, so as to allow a shaft-tunnel passing under them from the forward engine-room.

With regard to the boilers, it is assumed that large steam-generators will have to be used, on the lines of those suggested by Captain Taussig (9,000 sq. ft. heating surface) for his leader design. The uptakes have been trunked together into two large funnels, on the lines of the new single funnel of H.M.S. *Warspite,* and the funnels of the Japanese cruisers *Yubari, Furutaka,* etc.

Visual Signalling Gear, Searchlights—I must, of course, remain dumb upon the question of long and short-range inter-communication between the leader and her destroyers. This is a topic which can only be competently discussed by naval officers. They alone can decide how simplicity, speed, accuracy in sending and reception can be attained in the best manner especially under battle conditions. Seven searchlights are scheduled in the *Canandaigua* design. Four of these, (two port, two starboard) are of the controlled, large-diameter type, mounted between the funnels.[3] Two small ones for visual signalling purposes are mounted upon the forward lower bridge wings. There is a third small one also for signalling use, abaft the tripod mainmast. We may add here, that the supporting legs of the tripod are used as a kind of very convenient "hat-stand," for the mounting of Vickers range clocks, target bearing or speed indicators, etc. Elevated at the stern in this way, these indicators will be in the most legible position for the destroyers, following in the wake of their leader. The spidery yards and triatic antenna spreader, surmounting the tripod masthead, are features adapted from the Swedish Navy, and intended to assist in recognition of the leader at long range.

Torpedo Armament—The present writer has expressed the view (elsewhere than in this journal), that leaders and destroyers should have no tube armament whatever, and should relinquish the torpedo arm entirely to torpedo-carrying seaplanes, submarines and the coastal motor boat. We shall not attempt to defend these heretical ideas here, but have assumed that American standards postulate the provision of a torpedo battery. Eleven tubes are provided for: i.e., nine twenty-one-inch and two fourteen-inch. One triple tube mounting is before the funnels, the other abaft them, and both are on the center line. Over the stern is the most novel part of the whole torpedo armament: viz., three twenty-one-inch torpedoes carried in fixed discharging troughs, together with the necessary compressed air rams, for forcing the torpedoes tail first over the stern. This, of course, is the type of discharge used in the Thornycroft type coastal motor boats. Why should it be added to a leader?

Let it be recalled that one of the prime essentials of our "ideal leader" design is to *attack forward,* and the use of stern trough-discharges confers on her the advantage of ahead torpedo fire. If the leader is the vanship, she may—and probably will be—the first vessel of the flotilla to encounter the enemy at night, and that enemy may be met at close range. What is the leader to do, if she wishes to use her torpedoes? Is she to swerve, so as to bring her center-line tubes into bearing on the target, and run the risk of her following destroyers "piling up" on top of her? By the use of stern troughs, she will be triply armed, for she will be able "to get in her blow first," and probably before the enemy knows exactly what has happened. For another thing, trough-discharged torpedoes have been found to run far truer than tube-discharged torpedoes. A true run and hit secured by the leader will

[3] When commenting on the "Taussig Leader," I objected to the location of the searchlights on the forebridge. The reason I gave was that the location of these lights would, during a night action, betray the "brain center" of the whole flotilla to the enemy's gunfire. Captain Taussig (November issue) says there may be something in my view, but the deflection of the enemy's shell would probably prevent hits being scored upon the exact locality of the lights. May I say that it is not a question of putting shots straight into the middle of searchlights, but of betraying an *area*—bridges, chart-house, etc.—to the enemy. Are you not, as it were, giving the enemy two illuminated mark-buoys, by which he can range upon the forebridges, perhaps with tracer-shell? If Captain Taussig will examine contemporary warship design (as exemplified by *West Virginia, Omaha, Hood, Queen Elizabeth, Hawkins,* British leaders, U.S. and British destroyers), he will see that the modern practice is to place the large diameter searchlights at a point well abaft the forebridges.

set an inspiring example for the destroyers to emulate.

In the hull side, up in the bows, and below gun positions No. 2 and No. 3, will be seen a long, sliding door. This covers a port, and behind the port is a fourteen-inch tube (one port, one starboard), firing short-range, shallow running "cold" torpedoes. These torpedoes are for close-range night fighting with hostile destroyers, where the heavy twenty-one-inch "heater" torpedoes would dive too deep and under-run the targets.[3] Incidentally, it is said that, when British and German destroyers "scrapped" together at night, the Germans used their torpedoes first, and only after that opened up with gunfire. Which, some people declare, is the correct way of night-fighting against destroyers.

Aircraft Catapults—Two of these are suggested in the *Canandaigua* sketch. Captain Taussig, in his leader design, provided for two triple tubes, and for a single catapult. It appears rather redundant to provide an extra turntable for a revolving catapult, when we already have tubes upon rotating mounts. Hence, I have mounted the *Canandaigua's* catapults above her triple tubes. And in extenuation of this heinous departure from convention, may I say that the new Yarrow-designed destroyers of the *de Ruyter* class (Netherland Navy) are to carry a small seaplane mounted over the after triple tubes. The form of catapult I have envisaged is a light, latticework pattern, capable of being folded up. The forward catapult is shown, in the sketch profile, with a plane mounted upon it; the after catapult is shown folded up. From Jane's *Fighting Ships* (1926 Edition, p. 53) H.M.S. *Vindictive* seems to mount a light, folding catapult of the design suggested above.

The U. S. Navy mark of triple twenty-one-inch tube weighs, I believe, close on three tons. With catapult and plane superadded, the total weight of the whole mass may become too heavy for rotation by hand power. In that event, recourse will have to be made to the expedient used by the Germans for training their heavy 23.6-inch twin T.T. mount—that is, electric motors would have to be employed for rotating the triple tubes plus catapult.

Depth Charges—Surprise may be expressed that little or no provision is made for these. As a matter of fact, one of the first drafts of the *Canandaigua* design embodied triple depth-charge racks at the stern. But then the following chain of thought suggested itself: Suppose the leader runs across a hostile submarine and put down a rather lavish series of "ash-cans." And suppose that the destroyers, owing to smoke-interference, low visibility, or other causes, do not exactly see or understand what the leader has done, and continue to steam up her wake. What would happen? It appears as if the mother-hen would, soon afterwards, have to contemplate, mournfully, the shattered remains of a few of her own chickens. Allowance has been made for one Y-gun, and a couple of ready-use depth charges on the quarters; otherwise depth-charges are left severely alone. But those who dislike the triple torpedo-trough discharge over the stern, can, if they desire, substitute depth-charge racks. And those who *do* desire some astern fire, can mount one or two five-inch guns aft, and transfer the anti-aircraft guns to a position amidships, about the funnels.

And this, in the main, is the outline of *Canandaigua* (D.L.4.)—a vessel designed to express in outward build, and in her component features, the very essence of specialized, high-speed, intrepid leadership. A vessel, in short, that is to be "the Captain of the Storm Troops of the sea."

Is she a worth-while ship? Or is she simply an impossible freak?

[3] Captain Taussig does not like my idea of using two sizes of torpedoes in a leader, the smaller size being for use against hostile destroyers at night. He says that if cold shots have to be fired, the work can be done just as well by twenty-one inch torpedoes. If this be so, all well and good. I can only say again that the practical experience of our night actions with German destroyers in Dover Straits, taught us the need of a special mark torpedo, for fighting under such conditions. What was wanted, was a small "cold" torpedo, with a very short range and high speed setting, which would pick up and keep a shallow depth almost as soon as it was discharged from the tube. I think that fourteen-inch tubes were stripped from old British torpedo boats or patrol boats, and added to the destroyers of our Dover patrol, to meet this need. Further, the new British Admiralty *S* class boats came into service with two sizes of torpedoes, twenty-one-inch and eighteen-inch, the latter being for night actions with enemy torpedo craft. Perhaps a modified twenty-one-inch seaplane torpedo would meet this need.

Naval Organization from Industrial Viewpoint

(See page 1519, August, 1926, Proceedings)

Captain H. C. Dinger, U. S. Navy.—This article brings out many of the essentials in regard to the proper handling of material matters in the Navy. There are now numerous drawbacks in the way material matters are handled which are operating for the reduction in material efficiency and increased costs. One of the main troubles is that material matters are not properly coördinated by any authority who is thoroughly experienced in material matters and on account of this desirable action in many things is not taken. We have numerous chiefs of bureau but they are limited to their spheres of cognizance and there is no definite material authority to coördinate their actions or to pass on many material matters that are outside the cognizance of the bureaus. The navy yard division coördinates certain matters and is assumed to have certain authority over bureau action. The technical aid of the secretary handles certain other matters. The assistant for material in operations has certain coördinating functions which do not always appear to be very clearly understood or recognized, and apparently his authority goes only when his decisions are authenticated by the Chief of Operations or the Secretary. It is obvious that there should be some one definitely recognized authority for material.

One possible solution is to clothe the assistant for material in operations with such definite authority to act for the Navy Department on material matters. This would require further that he also have charge of the navy yard division and the matters now handled by the technical aid of the secretary. By combining these three and assigning a high ranking officer with positive and definite authority of the Secretary over the activities of chiefs of material bureaus, the problem of coördination of naval material might be solved. Additional laws are not necessary unless it is deemed essential to separate the head of the naval material division from the Chief of Operations. What we are after is to secure a competent and experienced authority to control, coördinate and to be generally responsible for the effective production and maintenance of naval material and for the expenditures incurred for this purpose. However, be he ever so able, he cannot go far unless he has full authority from the Secretary of the Navy and the wholehearted coöperation and backing of the Chief of Operations. This carries out the main ideas cited by Captain Nutting, and requires no additional laws, and little or no rearrangement of offices and few changes in regulations and procedure.

Anyone who is nursing the idea that our material matters are now being handled with anything like 100 per cent efficiency and economy has much to learn. We are working here and there for improvements mostly from the bottom up but what we need is effective improvement caused by suitable action and directions from the top down. We need intelligent doctrine and policy and definite workable administrative procedure. These are not likely to be secured except from the efforts of officers who are experienced in material matters and understand intimately the various details of these problems.

The idea of the so-called engineer corps is a very desirable ideal. I take it that this is to include the various specially trained technical officers who are to be detailed to duties for which they have been specially trained. This is a good idea but one not so very easy to carry out because it would require some rather revolutionary changes for which I fear there would not be a sufficiently powerful general demand in the Navy.

Engineer specialists are now provided for by law; extend this same idea to ordnance specialists, aëronautical specialists, etc. Then assign these specialists to perform the technical work of the Navy. Amplify such details by additional line officers who are not specialists; assigning the non-specialist to work that his training and experience will enable him to handle. In theory this is now done but in practice it does not work out so well, because the basic idea of the specialist seems to be ignored. For various reasons there is a tendency to prevent the specialist from having real authority to make decisions even in purely technical matters. Naturally these tendencies prevent the highest efficiency from being secured.

If the Navy can realize that full success in technical work comes only through full encouragement to specialists and that the specialists are fully as loyal to the best inter-

ests of the Navy as anyone, then the greatest obstacle to securing improvement in the production and maintenance of naval material will have been removed.

Details to duty for line officers are now made too much on the basis of treating all line officers as having like qualifications instead of detailing officers whose capabilities will best suit the job. This defect can be overcome to a certain extent by definite assignment to special duty by law of a limited number. If this is done this nucleus in any specialty gives a rallying point around which the non-specialist can be detailed.

If the idea of unity of control of material or industrial matters at the Navy Department is once fully recognized and a responsible, competent and experienced coördinating and directing official assigned, there is no reason why effective results should not follow, provided all hands give loyal service. We need better means for control and coördination of the bureau activities and for making more efficient assignment of and training of officers to material and industrial activities.

The establishment of the navy yard division has resulted in great improvements as far as navy yards are concerned. This may serve to point the way; and by the lessons here learned the ways and methods of properly and efficiently controlling the direction of the whole system of material maintenance may be determined.

A complete reorganization of the Navy Department, or rearrangement of corps or the complete amalgamation of the staff corps with the line is very unlikely. We now have a naval head provided by law,—the Chief of Operations. We have a line and certain staff corps. We further do provide for some and can provide for additional line specialists. We have here the material for making an effective organization. This has been accomplished at various navy yards, where representatives of all these various corps welded into an efficient organization the full success of which was based on making the best detail so as to use officials on work that they were best suited for, and on having definite responsibility for the efficiency of the whole devolve upon the manager, who was sufficiently familiar personally with material matters and who had the requisite managerial training and experience to properly carry out the functions of that office.

There is given below a general idea of the scope of activities and subdivisions of the suggested material division.

The Board of Inspection and Survey is not included because this board is not entirely concerned with material, has no executive functions and can function satisfactorily without being placed under the material division.

Material planning section—General policy and doctrine as to design, production and maintenance of material. Coördination of material bureau activities and questions. Joint material projects, new construction, criticism of design. Policy as to major alterations. Examination into new methods. Pass on any other material matters not otherwise handled. A force of three to five officers to investigate and decide any of these matters.

Civilian personnel—Wages, promotions, etc. In general as now done.

Navy yard organization and administration—Comparative data of performance. Study of methods to improve efficiency. Navy yard efficiency systems. As now handled.

Navy yard equipment and development—As now handled.

Experimental and research work—Inventions and departmental directions concerning inspection and specifications for material. Coördination of research and experimental work with other government departments and with industry.

Fleet maintenance—Authorization of repairs and alterations. Assignment to navy yards. Schedules for repairs, priority of work, etc. Generally as now done by assistant for material but in a more simplified and expert manner. More responsibility to be left to individual navy yards.

The material bureaus would have full authority and responsibility, each within its own limits of cognizance as at present, but their activities would be definitely guided, directed and coördinated by this organization, the head of which would then be responsible to the Secretary of the Navy.

We would then have the combination of knowledge with authority, which under present conditions is somewhat lacking. Furthermore this would provide clean cut responsibility for all material matters and would stop some of the indecision, halting action and non-action which has been ex-

perienced under our naval administrative system so far. The planning section could automatically handle many matters for which now many special boards are appointed.

Our system of inspection for naval material should be uniform and consolidated. Our research and experimental work should be centrally coördinated to avoid duplication. Uniformity in administrative procedure in connection with material should be sought and above all effective steps toward securing economy, avoidance of waste, lost motion and the doing of unproductive operations should be put into effect.

Something might also be said about present methods of training and assigning officers who perform important work in connection with material production and maintenance. Both the training and the detail are now too haphazard. Numerous officers are given certain training or certain postgraduate courses and after this is done are not assigned to duty where this special knowledge is utilized. This is particularly true of line officers for engineering work. More of the material billets should be filled by officers who are specially well qualified for these positions and who can, in case of expansion, better train green hands to take care of the increased activities.

The problem of securing a comprehensive organization, proper administrative procedure and the most effective personnel for handling the material matters of the Navy is a large and intricate one. Apparently, it has never been approached in a really rational way by officials who were thoroughly material minded. Capt. Nutting has pointed out some of the obvious defects that have existed and the inconsistencies that have been allowed to prevail. The one very serious situation now existing is that many misapprehensions as to material matters and the personnel identified with material matters are prevalent among the officers of the Navy and there is prevalent the unfortunate notion that a rather limited experience connected with some material matters will fit an officer for properly performing almost any duty connected with material. We are obtaining in too many directions amateur performance and dilettante ideas and opinions.

It is believed possible by giving material and material experts their proper rôle, place and authority in the naval organization and allowing the technical officers definite cognizance and control over technical production and technical personnel that much greater general efficiency in naval material will be secured.

The ideal of the engineering corps as suggested by Capt. Nutting would be one answer, but one major modification suggests itself. It seems that the supply corps should remain as a separate entity, with a finance and procurement division, more or less coördinate with the material division. The Navy Department organization would then be about something like the following:

Secretary of the Navy
Assistant Secretaries
Personal Aides

Advisory

General board, board of inspection and survey, examining boards. Other special statutory boards. To be reduced to as limited a number as possible. All matters coming up should be handled as far as possible by some of the executive divisions in each one of which there should be a planning section.

Executive Divisions

Division of Operation—Generally as at present but with material functions transferred to material division. Chief of Operations. Senior naval assistant with power to act for Secretary.

Division of Material—All material functions. Takes over all matters under ordnance, C and R, Engineering, Yards and Docks and material matter of Aëronautics and Navigation. To perform material functions for any naval activity. Suitable subdivisions under bureau chiefs.

Division of Personnel—All personnel functions. Generally what is now in Navigation (except material). Medicine and Surgery. J.A.G. General oversight of education and training of all naval personnel. To have suitable subdivisions under bureau chiefs.

Division of Finance—All matters dealing with finance, procurement, accounting, supplies, generally all matters now under Bureau S. and A. and all other financial matters in Navy Department. Would take over budget office, preparation of estimates and central distribution of allotments. To

have proper subdivisions under bureau chiefs.

Marine Corps—Generally as at present.

Members of all corps to be available for duty under any division as may be desirable. Occupants of any official position to have all authority incident to that position without reference to corps.

General Board and other special boards not to include in their membership any of the chiefs of division. Each division should have a suitably organized planning section for the purpose of coördinating work, handling current work that requires planning and for evolving policy, doctrine and proper administrative procedure. The Secretary's council would consist of the Assistant Secretaries, Chiefs of Division and head of General Board.

The problem of detailing supply officers to alternate sea and shore duty is already worked out. The problem as to naval constructors can also be worked out and a certain minimum sea duty should be required. The problem of the assignment of line officers in connection with material work is more intricate. First there must be some practical and rational method of providing for the material specialists and assigning them to work for which they are particularly fitted. Then following this is the problem of utilizing a certain number of non-specialist line officers in conjunction with production material work. But the key positions in the material organization should be filled by officials thoroughly versed and experienced in material work.

Personal Narrative

(See page 295, this issue of PROCEEDINGS)

The following additional information has been brought to the Editor's attention:

No. 19—The Secretary of State of the United States to the Austrian *Chargé d' Affaires* at Washington.

Washington, September 26, 1853.

The President has carefully considered the note of Mr. Hulsemann, Charge d'Affaires of His Majesty the Emperor of Austria, of the twenty-ninth ultimo, addressed to this department, and the other documents relative to the much-regretted occurrences at Smyrna in June and July last, with a view to ascertain the nature of the complaints therein preferred against the American officers engaged in that affair, and for the purpose of giving such satisfaction as Austria might be entitled to receive in case he should find that these officers had not duly respected her rights.

Though differing very much from the views presented by Mr. Hulsemann on behalf of his Government, the President still indulges the hope that the exposition of the principal reasons on which his own conclusions are founded will induce His Majesty's Government to look at the transaction in a different light from that in which it is presented by that Government.

. . . . . .

Opportunely, The United States' sloop-of-war, the *St. Louis,* under the command of Captain Ingraham, arrived in the harbor of Smyrna before this design was executed. The commander of the *St. Louis,* from the representation of the case made to him, felt it to be his duty, as it unquestionably was, to inquire into the validity of Koszta's claim to American protection. He proceeded with deliberation and prudence, and discovered what he considered just grounds for inquiring into Koszta's claim to be discharged on account of his American nationality. During the pendency of this inquiry, he received notice of the design to take Koszta clandestinely, before the question at issue was settled, into the dominions of the Emperor of Austria. As there was other evidence of bad faith besides the discovered design of evading the inquiry, Captain Ingraham demanded his release, and intimated that he should resort to force if the demand was not complied with by a certain hour. Fortunately, however, no force was used. An arrangement was made by which the prisoner was delivered to the custody of the French consul-general, to be kept by him until the United States and Austria should agree as to the manner of disposing of him.

This full statement of the facts is deemed important, as it will correct some errors, and aid in presenting with more distinctness the questions to be discussed.

The undersigned will now proceed to present the views of the President upon this transaction, and his reply to these several demands.

. . . . . .

To place the justification of the American agents still further beyond controversy, the undersigned will now proceed to show that Koszta, when he was seized and imprisoned at Smyrna, had the national character of an American, and the Government of the United States had the right to extend its protection over him.

. . . . . .

The appeal of Mr. Brown to Captain Ingraham to interpose for the liberation of Koszta, and his advice to effect it in the way it was done, must be regarded not only as proper, but praiseworthy acts, provided Captain Ingraham's conduct can be vindicated. The justification of Captain Ingraham will consequently exonerate Mr. Brown from all censure. If Captain Ingraham's course was right, Mr. Brown's cannot be wrong. The commander of the *St. Louis* was placed in a truly embarrassing position. Charged with the protection of the persons and property of those who had a right to the protection of his government, it was at the same time no less his imperative duty to re-

spect the authorities of all countries in friendly relations with his own. After anxiously considering the case presented to him at Smyrna, he determined that he ought to effect the release of Koszta, and, if unavoidable, resort to force to accomplish it.

It has excited some surprise here that, after a consideration of the circumstances, an impression should be entertained in any quarter that Captain Ingraham either committed or meditated hostility towards Austria on that occasion. In passing upon his conduct it is necessary to keep in view the conclusions established, as the undersigned believes, in the preceding remarks; for he, without doubt, acted upon precisely the same conclusions. He believed that Koszta had been seized without authority, that he was illegally imprisoned, and that he ought at once to be set at liberty.

. . . . . .

There is a consideration probably not brought to the notice of Austria, and not sufficiently regarded by others, which places the acts of Captain Ingraham in a true light, and repels the inference of intended hostile demonstrations towards Austria. It was the understanding of the parties that Koszta should be retained at Smyrna while the question of his nationality was pending. Captain Ingraham received satisfactory evidence of a design, on the part of the Austrian functionaries at Smyrna and Constantinople, to disregard this arrangement, and remove him clandestinely from the *Hussar* on board of a steamer, for the purpose of taking him to Trieste. The information was such as did not permit Captain Ingraham to doubt that the commander of the *Hussar* concurred in this design, and intended to aid in carrying it into effect. By this evidence of the want of good faith on the part of the Austrian functionaries, in which the captain of the *Hussar* was implicated, the captain of the *St. Louis* was placed in the perplexing alternative of surrendering the captive, without further efforts, to the said fate which awaited him, or to demand his immediate release, and, in case of refusal, to enforce it. The Government of the United States exceedingly regrets that he was reduced to this painful alternative; but it cannot find, after a full consideration of all the circumstances, any good reasons for disapproving the course he pursued. It is not just to Captain Ingraham to look at this affair as it was at the precise point of time when the demand for the release of Koszta was made; the antecedent events qualify and legalize that act. The Austrian functionaries had obtained the possession of the person of Koszta, not in a fair or allowable way, but by violating the civil laws of Turkey and the rights of humanity. Under these circumstances . . . .

. . . . . .

On entering upon the duties of his office, the President announced the policy which would be observed by this Government in its foreign intercourse: "We have nothing in our history or position to invite aggression; we have everything to beckon us to the cultivation of relations of peace and amity, with all nations. Purposes, therefore, at once just and pacific, will be significantly marked in the conduct of our foreign affairs." There need be no apprehensions of a departure from this course.

. . . . . .

The President does not see sufficient cause for disavowing the acts of the American agents which are complained of by Austria. Her claim for satisfaction on that account has been carefully considered, and is respectfully declined.

. . . . . .

Koszta was not an American citizen. His declaration of intention to become one, however, to that extent entitled him to a qualified amount of protection on the part of the United States; especially in a state where he had the character of an alien, pure and simple, and where the question of his partially acquired allegiance was not complicated by considerations arising out of his allegiance of nativity.

The use of force by Captain Ingraham to secure the release of Koszta was also without warrant of international law. It differed from that of the Austrian officials only in that its effects were to vindicate the sovereignty of Turkey. Upon this ground it was defended at the time, and generally justified."

. . . . . .

U.S.S. *St. Louis*
SMYRNA, 2 July, 1853

SIR:

I have been directed by the American chargé at Constantinople to demand the person of Martin Koszta, a citizen of the United States, taken by force from the Turkish soil and now confined on board the Brig *Hussar*. And if a refusal is given to take him by force. An answer to this demand must be returned by 4:00 o'clock P.M.

Very respectfully,
Your obedient servant,
D. N. INGRAHAM, *Commander*

To the
Commander of the Austrian Brig *Hussar*

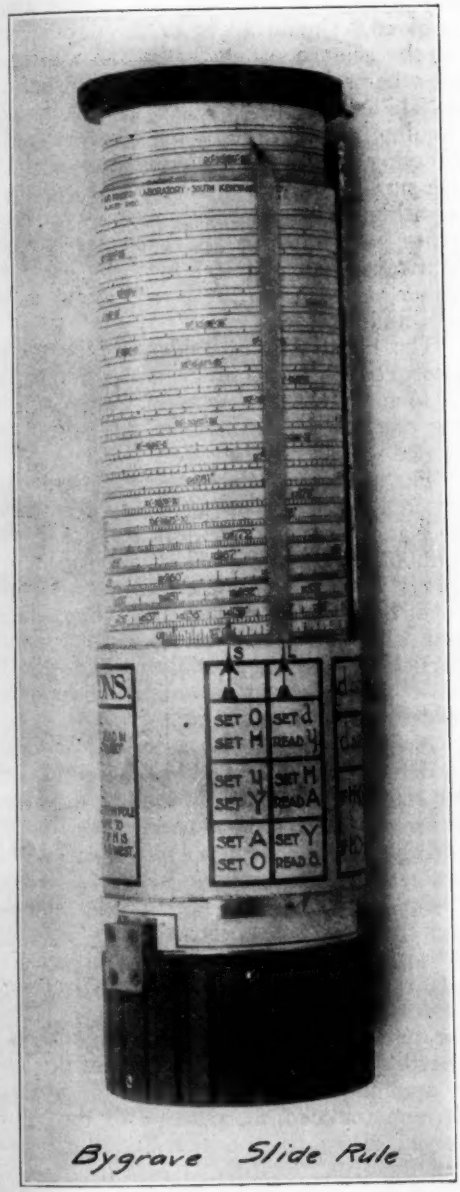
Modern Methods in Sea and Air Navigation

(See Page 17, January, 1927, PROCEEDINGS)

COMMANDER ARCHER M. R. ALLEN, U. S. NAVY.—It is interesting to note that in the development of a practical method for the solution of the astronomical triangle in the air the British Air Ministry has in the construction of the Bygrave slide rule used exactly the same formulæ as those used by Commander Aquino in his tables. This instrument is a cylindrical slide rule giving a helical length of about twenty feet which

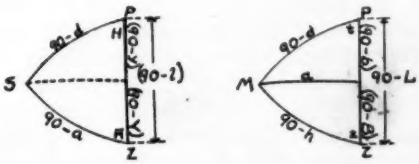
makes a solution sufficiently accurate to warrant its use even on board ship. It is particularly satisfactory for use in the air as there are no pages to flop and the instrument is light and compact.

The defects in this rule are that if it slips the work must be done over from the beginning and that there is practically no way of recording and checking over intermediate work.



Bygrave Slide Rule

The two triangles are shown below lettered to correspond.



The corresponding lettering and formulæ are given below.

d = declination	= d
H = hour angle (meridian)	= t
l = latitude	= L
c = co-latitude	= 90 − L
A = azimuth (from depressed pole)	= Z from either pole
a = altitude	= h
Y =	= B
y =	= b
c = 90 − L	

Bygrave.		*Aquino.*
$\tan y = \frac{\tan d}{\cos t} = \tan d \sec t$		$\cot b = \cot d \cos t$
$\tan y = \tan d \sec t$	=	$\tan b = \tan d \sec t$
d and *l* same name		
$Y = c + y$		$(90° - B) + 90 - L = 90 - b$
$c = 90 - L$		
$Y = 90 - L + y$	=	$B = 90 - L + b$
d and *l* opposite names.		
$Y = c - y$		$(90° - B) + 90° - L = 90 + b$
$c = 90 - L$		
$Y = 90 - (L + y)$	=	$B = 90 - (L + b)$
		$\cot Z = \frac{\cot a \cos B}{\cos b}$
$\tan A = \frac{\cos y}{\cos Y} \tan t$		$\tan Z = \frac{\cos b \tan t}{\cos B}$
		$\cot B = \cot h \cos Z$
		$\cot h = \cot B \sec Z$
		$\tan h = \tan B \cos Z$
$\tan a = \cos A \tan Y$		$\tan h = \cos Z \tan B$

The example given in Commander Aquino's article worked by both methods is given below.

Bygrave.

16 May, 1870, p.m. L 54–16N.
λ 24–08W
d 19–10N
=32°–04

GAT 5–42–00			
H_g 85°–30′			
λW 24–08			
H 61–22			
y 35°–57′			
$co–L$ 35°–44′			
Y=71°–41′			
A=78°–02′	a=32–03		78– 02
	=32–04		180–00
	toward 1′	A_N	258–02

For the steps presented here

9 rule settings, 2 subtractions, 2 additions, and 56 figures are required.

This result is about ¾ mile in error and the records of all intermediate steps are lost as soon as the rule is shifted.

Aquino.

16 May, 1870, p.m. L 54°–16′N
λ 24°–08′W
d 19°–10′.0N

W	☉				
$C–W$	I. C.				
C	h_s				
C fast	corr				
GMT	h 32°–04				
EqT					
GAT 5–42–00					
t_G 85°–30′					
λ 24°–08′					
t 61°–22′					
a 56°–00′	L_{as} 53°–58.5				
b_{as} 35	b 35°–58.5				
t_G 85–30.0	C 18–00.0	h 32–07.7	Z	78–13.6	
t_{as} 61–22.0		h_0 32–04		180–00	
λ_{as} 24–08.0		away 4′	AZ_n	258–13.6	

For the portion of the process represented this method requires 3 book openings, 6 subtractions, 1 addition, and 79 figures.

The result is exact and easily checked.

Modern Methods in Sea and Air Navigation

(See Page 17, January, 1927, PROCEEDINGS)

CAPTAIN J. P. AULT, CARNEGIE INSTITUTION OF WASHINGTON.—Commander Aquino has rendered an extremely valuable service to navigation in bringing together in compact form the history of the origin and development of some of the principles underlying our modern navigation. The old saying, "Where origin is known, credit is given," should apply to the development of the science of navigation as well as to all other sciences. It is not often that one so skilled in this science as Commander Aquino has the urge or the opportunity for carrying on such painstaking investigations. He surely deserves great credit for his persevering efforts for the past twenty-four years to improve navigational science. Wherever astronomical methods are used, either at sea or in the air, Aquino's tables will find a place.

The latest Aquino tables are so greatly improved as to accuracy and arrangement as to make them of general utility in solving any problem concerned with the right-angled spherical triangle.

The precepts, which at first seem complicated and troublesome, have been modified and simplified, and many are known without reference to the tables by the observer who is using them continuously. The small bulk of the tables, their compactness, and elimination of interpolations appeal particularly to the aërial navigator if he must rely upon astronomical observations to determine his position.

The writer has used these tables at sea to determine the "Pagel" or longitude factor required when the assumed latitude was in error. To avoid the necessity of remembering any rules for applying the longitude correction in the proper manner, we used a simple geometric figure to determine the sign of this correction. Two lines are drawn at right angles to show the the four quadrants. A line is then drawn at right angles to the bearing of the sun or star in the quadrant in which the body is observed; in other words, the position-line of the body is drawn. If the true latitude is north of the one assumed, the position of the ship is moved along the position-line northward, and the true longitude is east of the computed longitude if the star is in the north-

west or southwest quadrants and is west if the star is in the northeast or southwest quadrants. These are not rules or precepts but explanations of the method and need not be remembered. The sign of the correction can be determined mentally if the direction of the position-line and of the motion of the ship along this line in accordance with the latitude correction are kept in mind. A rough sketch as above indicated, made in a few seconds on scratch paper, helps to picture the situation and to check the accuracy of the resulting position. Once the method is understood, the sign of the correction can be determined mentally and no rules or precepts need be remembered.

The writer has used Aquino's tables in the air and found them rapid and convenient where the position is to be determined by astronomical observations. Aërial navigation, however, must look to radio as the ultimate solver of its problems owing to the limitations and uncertainties of astronomical methods. It may be of interest to give some figures regarding the writer's use of Aquino's tables in aërial navigation.

Using an artificial horizon consisting of mirror mounted on gimbals and a small pocket sextant, for each position-line ten double altitudes of the sun were measured, usually occupying from four to five minutes. No preparation was made prior to the flight, it being assumed that the aërial navigator should be independent and prepared to take the air at a moment's notice. The ten observations were made and corrected, the declination and equation of time were taken out of the almanac, the altitude and azimuth were taken out of Aquino's tables, and the resulting position-line was plotted on the chart in from eight to nine minutes of time, over one-half of this time being used in measuring the ten double altitudes. Aquino's tables were opened only twice, first to determine *a*, and second to take out *b* and the computed altitude and azimuth by inspection, after *C* had been computed from *b* and the assumed latitude. The entire computation required only two columns of eight lines each, and of these sixteen lines, only five were quantities from the tables, *a, b, C, h, and Z*. Thus the author's claim that the tables are the "simplest and readiest" is well supported by our experience.

Submarines and Disarmament Conferences

(See Page 50, January, 1927, PROCEEDINGS)

BROCKHOLST LIVINGSTON.—Seldom does one find as complete a paper on a subject as Captain Anderson has written. It was especially interesting to the present writer since he recently prepared an article on the same subject and called it: "Submarines and Legitimate Warfare." The only publication to which it was submitted, refused it, probably because of the conclusion that there can be legitimate warfare with submarines.

Question as to the value of the submarine for defense should be definitely settled—so far as peace-time decisions can be definite. Anyone who has given the slightest study to the matter knows the value of the submarine. It has a decided value as an auxiliary to a fleet and its contemplated use is in perfect agreement with all the rules of warfare which existed before we signed the Submarine Treaty. The latter was arranged and signed under the influence of a "peace move," and consequently should not be accepted as the viewpoint of the nation.

The committee's report at the Washington conference included these remarks: "The submarine is particularly an instrument of weak naval powers . . . . unlimited warfare by submarines on commerce should be outlawed. The right of visit and search must be exercised by submarines under the same rules as for surface vessels. It (the committee) does not approve limitation of size."

The building programs of practically all the weaker naval powers—Argentina, Chile, France, Italy, Spain—include submarines. Nations with an extensive coast line are also interested in possessing a sufficient submarine force. To attempt to deny these weaker nations the right to defend themselves with the economical means of the submarine would be an almost impossible task. And unless we can deny the submarine to all nations, our attempted abolition must meet with failure or else leave some sea powers deprived of a necessary type while others are left free to enlarge upon their strength in this class. This latter course seems to be one which can meet success only in a country blinded by pacifism. Whether ours is such remains to be seen.

Unlimited warfare by submarines was never contemplated. Germany was forced to a course which left the submarine

The right of visit and search must be exercised by submarines as well as by surface craft. Unless we grant this right to all naval vessels, one of their essential duties is denied them. Limitation of size would have a bearing on the power of fulfilling the right of visit and search. In this matter we can well quote from an article by Admiral Sims in the *Current History Magazine* several years ago. Writing on "Changing Methods in Submarine Warfare," he said:

> The United States, owing to ignorance or disregard of the facts, has placed our country in an unfortunate position by signing a treaty specifying that the submarine can not be used in a humane way to carry on cruiser warfare. It is one of our strongest, cheapest, most reliable and most humane weapons of defense. It is an American invention that fits American genius.
>
> Finally, it would be well to point out that we are in the position that led Germany to adopt a cruel form of war: like Germany during the World War, we have a considerable number of old types and coast-defense types and have practically no modern types. In short, we have only the types that can be used advantageously only if we consent to sink without warning. Without assuming that we would do so even in self-defense or in defense of our dearest traditions or ideals, still it is clear that it is in the highest degree unwise to place that awful alternative before our government, when it can easily be, and ought to be, avoided.

Our Navy is better equipped with modern types today than when Admiral Sims wrote his article but we are not sufficiently well equipped to meet the demands of modern warfare. Ten of our submarines are over twelve years old and could well be replaced with larger types. We find, however, that there still remain unconstructed, three of the ships authorized in 1916. Instead of following the recommendations of the special board that they "be laid down during the fiscal year 1927," they will not apparently be commenced even during 1928. And still we have the alternative suggested by Admiral Sims.

In 1923, President Coolidge stated to Congress: "Additional planes are needed for the Army and additional submarines for the Navy." Since that date one mine-laying and two cruiser submarines have been commenced. In this year's message he repeated that "attention should be given to submarines, cruisers and aircraft," but no recommendations were made for even beginning the three already authorized. New authorization seems out of the question and yet we know the fleet is not sufficiently well supplied with the larger types.

The conclusion one comes to after reading Captain Anderson's paper is that the Submarine Treaty was concocted as a compromise for Great Britain's suggested abolition and, consequently, was a badly phrased and hazy attempt to pacify the British delegation. We signed away our right to a legitimate means of warfare because it was "thought that if the committee undertook to go into details of the processes, it would find itself involved in statements which were neither clear nor intelligible to the common mind. . . ." Where could one find a less intelligible document than the treaty in the form in which it has been ratified by the Senate? We, at least, can applaud France's stand in not ratifying. France may not hold the same views as ourselves on the debts but she certainly has a clearer conception of the rights of warfare.

What a blessing if Captain Anderson's words might be written upon the skies: "As the treaty now stands, *the most comprehensive rights of life and death over their naval personnel* are conceded by the signatories to the officials of *any country*, in the heat of war, under the authority of a treaty containing inconsistent and ambiguous articles, *and defying interpretation even by the eminent statesmen who signed it.*" (Italics are mine.)

Because Great Britain was panicky over the thought of another war in which practically her entire naval force must be used against the submarine, we were party to a treaty such as Captain Anderson has so ably summarized. Washington never even dreamed of such an entangling alliance!

It is indeed well that the Submarine Treaty as now written is not in effect and if every senator could read the consequence of his act in voting for ratification, it is firmly believed it would *never* be in effect.

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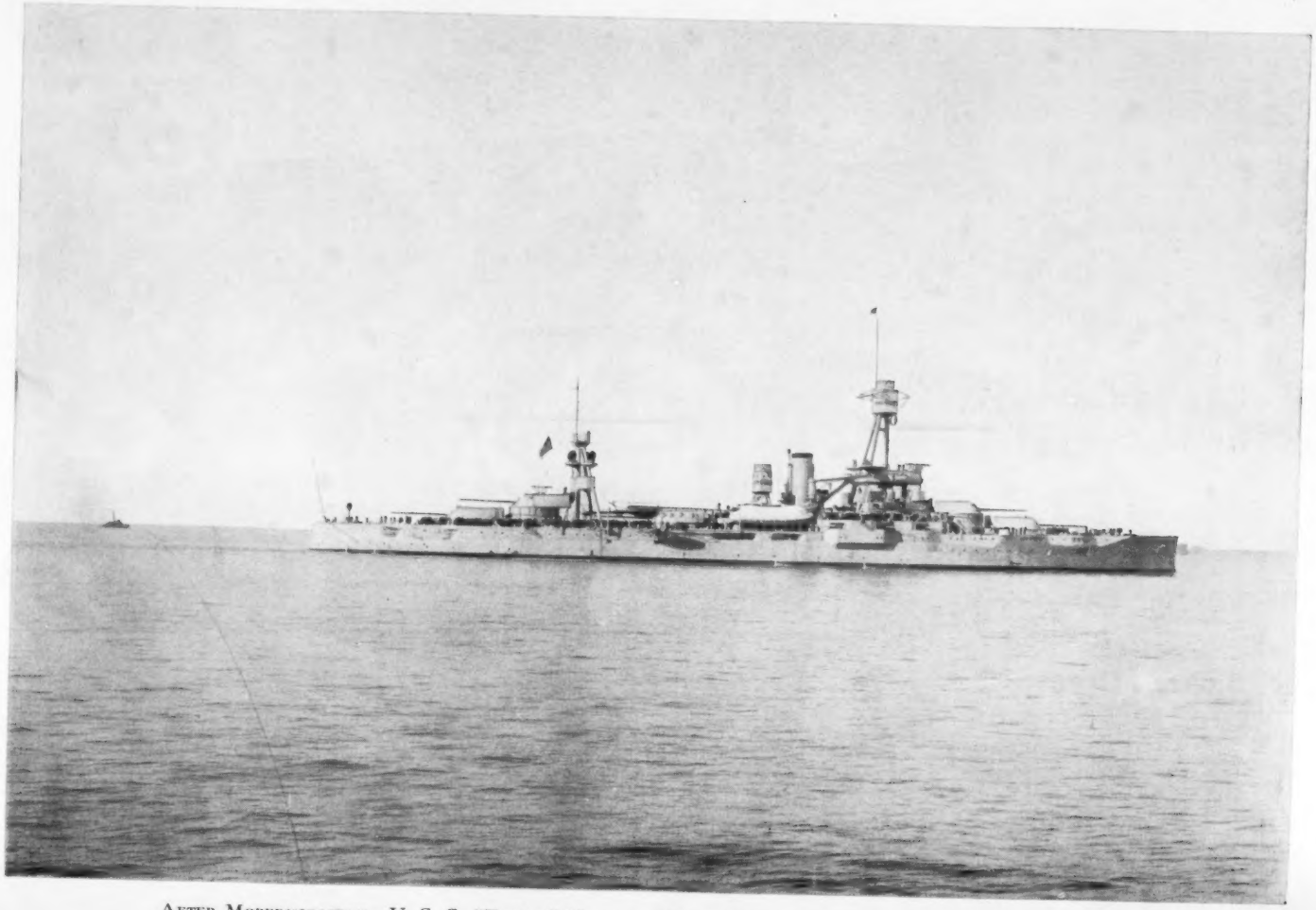

After Modernization—U. S. S. "Texas," Norfolk Navy Yard, November, 1926 (Note tripod masts.)

Professional Notes

3 January to 3 February

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GENERAL ARRANGEMENT

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After Modernization—U. S. S. "Texas," Norfolk Navy Yard, November, 1926 (Note tripod masts.)

UNITED STATES

American Naval Policy Regarding Cruisers

Engineering, 14 January.—The latest American naval bill, in which provision is made for ten new cruisers of the heaviest type, follows close upon a naval budget which authorized the building of five other cruisers of the same class. It may therefore be assumed that the congressmen and senators, who have brought forward this last bill and its predecessors' desire that the United States Navy shall be increased by fifteen cruisers of the latest type. Brassey's *Naval Annual* (1927 edition, page 299) makes the total increase rather larger. If the editors are correct, six additional cruisers will be laid down during 1927; so that, according to them, the projected expansion of cruiser strength is sixteen cruisers, or 160,000 tons. It must be added, however, that when these fifteen (or sixteen) additional cruisers are delivered, at least four old cruisers—the *New Orleans,* the *Olympia,* the *Albany,* and the *Rochester*—will probably be put out of commission. The numerical expansion will therefore be eleven or twelve but the increase in fighting efficiency to the American fleet will be very great. When effect has been given to the existing program, the United States will possess seventeen or eighteen cruisers of the largest and newest type, nine more scout cruisers of the 7,500 type, and ten older cruisers of the *Charlestown, Huron,* and *Missoula* types. This latter class, though somewhat out of date, is admirably suited for trade defense and convoy duties. Nobody can doubt that the total force of available cruisers will be a most formidable instrument of naval power in the hands of a country, which is not obliged to protect or control any vital artery of sea-borne commerce.

A project of naval expansion, which is at once so large and unexpected, deserves to be examined with the greatest care, and a word should be added about our method of examining the subject. It is worse than useless to draw up comparative tables of numerical strength, and to attempt to draw conclusions from them. The naval strength of two contiguous countries may be compared in that way; but America is separated by many thousands of miles from her nearest naval neighbors—Japan and England; and the relative strengths of the three fleets cannot possibly be estimated except by carefully comparing the strategic tasks which each fleet has been created to perform. Also, we cannot possibly form an accurate judgment upon the present bill without glancing at its origins and antecedents. We therefore intend to review, as briefly as possible, the chain of events which has led up to the present project, and to examine from the starting-point of admitted facts what strategical purposes the existing project of American naval expansion is inteded to serve.

The Origins of the Bill.—The agitation for expanding the naval forces of the United States is at least ten years old. It began in 1916, when irritation against our blockade measures was hottest; but the War turned the agitation into other channels, and the Washington Conference allayed it for a time. None the less, the desire for naval expansion, embodied in the well-known phrase "a navy second to none," was very general, even after the Washington Conference, and, in the summer of the year 1924, it expressed itself with surprising vigor. During the first months of that year the American fleet carried out maneuvers in the Panama zone, and, whilst the maneuvers were in progress, the Press started a sudden violent campaign upon the subject of American naval weakness. A Mr. Shearer led the agitation; he attempted to prove, by statistics of tonnage and gun power, that the American battle fleet was far below the ratio allowed by the Washington Treaty. His campaign grew to such strength that the Navy Department was compelled to take official cognisance of it; and Mr. Roosevelt, the Assistant Naval Secretary; issued long explanations and replies to Congress. While this agitation was in full blast, the official umpire to the maneuvers issued a report, which so substantiated the clamor previously raised by Mr. Shearer, that no impartial onlooker could possibly doubt that the naval service was deeply interested in the Press campaign.

This general offensive upon the Government and Congress of the day produced some of the effects desired of it. When Congress assembled, they passed a bill providing for the building of new cruisers, and for an extensive program of alterations and improvements to the older battleships of the

fleet. It was not, however, until the following year, that the real aims of the naval service and its supporters in Congress were really made manifest to the whole world. During the autumn of the year 1924, a new controversy, very similar to the capital ship and submarine controversy which had raged in England when the War was over, blazed up in the American press; and President Coolidge, harassed upon one side by advocates of naval expansion, and, upon the other by aëronautical experts who argued that a surface fleet was useless, assembled a special naval board to inquire into America's naval policy. This body was composed of the most prominent naval officers of the day, and was thoroughly representative of the American naval service. In February, 1925, the board presented a report which will certainly be the starting-point of American naval policy for many years to come. First, the board recommended that alterations and improvements should be carried out on thirteen battleships of the American fleet, and that the eight new cruisers voted by Congress at its last session should be taken in hand without delay. Secondly, the board made a number of recommendations upon aëroplane building and personnel. These findings were, however, on points of administration: with regard to policy, the board recommended that a "tonnage strength based upon the 5 : 5 : 3 ratio" should be maintained in all types, cruisers, destroyers and submarines, and that the same should be done with regard to naval air strength. This recommendation expressed in condensed form the real purpose of the agitation for naval building which had been going on for so long, and must be regarded as the origin of the present naval bill. If the board's findings become thoroughly incorporated into American naval policy, the existing bill will be followed by others, and the American cruiser and submarine fleets will be progressively expanded until they reach a total corresponding to the 5 : 5 : 3 ratio. The provision for ten additional cruisers is a mere advanced guard to a formidable main body of naval expansion.

Before proceeding further with this enquiry, it will be worth while to examine the recommendations of the board in the light of the Washington Conference. What were the real reasons for limiting only capital ship strength, and leaving cruiser, submarine and destroyer tonnage free? The answer is not to be found in the articles of the treaty, but in its underlying purposes. The real intention of the treaty was, as President Coolidge stated to the American Press, to make it impossible for any one of the three great naval powers to operate in the other's waters. Limitation of battleship strength did effectually make this impossible, for no power could ever take the responsibility of sending away its entire battleship forces to operate in distant waters, and the battlefleets were so limited by treaty that they could no longer be divided up into detachments. Limitation of minor types, such as cruisers, destroyers and submarines, was found, upon examination, to be a much more complicated question; and one which affected the national security of each country in a different way. The cruiser and destroyer strength necessary to a country's security was directly proportionate to the length and vulnerability of her vital oceanic communications. Great Britain's maritime frontiers were the north Atlantic route to Canada, the Argentine route, and the routes to Australia, New Zealand and the East. They were spread over the oceans of the world, their security was not to be assured by battleship, but by cruiser, strength. Japan's vital communications, though not so long, were growing with the progressive industrialisation of the country. It was therefore grasped by all delegates at the Conference that cruiser and destroyer strength did not affect the vital purpose of the treaty—to make offensive operations in distant waters impossible—and that it was a form of naval power so bound up with the larger question of national security, that nothing but apprehension and mistrust would follow if limitation of minor types were attempted. Great Britain would always be compelled to scatter and disperse her cruiser strength, and could not, without manifest injustice be asked to agree to a total tonnage equal to that allowed to a power which could keep her's concentrated in a particular theatre. The same was true for Japan.

American Foreign Trade and its Strategical Implications.—Having thus explained that the present naval bill cannot be regarded as anything but an item in a naval policy, which has a definite and far-reaching object, and having also shown that comparative cruiser strength cannot be calculated by total tonnage, it remains to be

seen what position the fleet of the United States will occupy in the world, if effect is given to the present policy. This, as has already been said can only be estimated by examining the direction and importance of American trade, for cruiser and destroyer strength are only calculable in terms of oceanic communications.

The direction and volume of American export trade are clearly shown in the annexed table. The strategical conclusions

—	Exports in millions of dollars.	Imports in millions of dollars.
North America—		
Crude material	119	239
Crude footstuffs	110	128
Manufactured foodstuffs	117	246
Semi-manufactures	142	177
Finished manufactures	587	184
Total	1,079	981
South America—		
Crude materials	6	146
Crude foodstuffs	5	275
Manufactured foodstuffs	33	6
Semi-manufactures	65	90
Finished manufactures	291	2
Total	400	519
Europe—		
Crude materials	1,114	320
Crude foodstuffs	195	36
Manufactured foodstuffs	383	92
Semi-manufactures	357	321
Finished manufactures	525	451
Total	2,576	1,238
Asia and Oceania—		
Crude materials	170	320
Crude foodstuffs	9	36
Manufactured foodstuffs	35	92
Semi-manufactures	90	321
Finished manufactures	371	451
Total	674	1,397
Africa—		
Crude materials	6	55
Crude foodstuffs	0.5	14
Manufactured foodstuffs	7	1
Semi-manufactures	7	20
Finished manufactures	69	1
Total	89.5	92

to be drawn from this table are self-evident. About three-tenths of American trade is carried over routes which no adversary can possibly interfere with. The figure of 1,480 millions, or the total of the north and south American import trade, represents traffic which either goes direct overland to Canada, or along coastal routes to eastern Canada and Newfoundland, or through the Caribbean and along the coast of South America to Brazil and the Argentine. Before these routes could be seriously interrupted an adversary would have to establish half a dozen cruiser bases in South American territory, and as many more along the coasts of Canada. This is absolutely impossible, and we are thus compelled to conclude that about three-tenths of American export and import trade defends itself. It could only be cut off if Canada and the South American republics formed themselves into military confederation and declared war upon the United States; a supposition of the kind is the merest extravagance.

America's European and Asiatic trade is more exposed to attack. A European power at war with America might cut American trade at its terminals, and Japan might stop a large proportion of American trade with the Far East; but it is an open question whether additional cruiser strength would save these communications. Let us, therefore, examine the movement of trade between America and Europe, and America and Asia rather more closely.

The tonnage statistics for the trade between the United States and Europe are as follows:

Imports from: (in tons)	—	Carried in		
		U. S. Ships.	British Ships.	Others.
United Kingdom	1,923,449	249,039	1,307,032	367,378
Baltic Europe	1,108,060	144,966	16,420	946,674
Germany, Holland, Belgium and N France	3,365,751	853,036	490,289	2,022,426
Western France, Portugal, Spain, Azores and Canaries, Mediterranean	2,041,606	260,840	506,495	1,274,271
Totals	8,438,766	1,507,781	2,320,236	4,610,749

An analysis of the export totals gives, roughly the same results and need not be made in detail. It will be seen at a glance, that American trade with Europe is mainly carried in foreign bottoms; that British shipping transports well over a quarter of the total; that the merchant navies of the rest of Europe carry about half, and the American merchant fleet the remaining quarter. This very peculiar distribution of foreign trade involves a peculiar defense problem. In the event of a war between America and a European state, the bulk of American trade could be continued if the United States could insist on the widest and most liberal interpretation of those rules of international law which deal with neutral

immunities. It will at once be said that if America were at war with a European power she would be a belligerent, and would have no voice in the matter. That to a certain extent is true; but it does not go to the root of the matter. The non-belligerent interests behind the 4,610,749 tons of carrying power would automatically press for the widest possible freedom of neutral commerce. America's power to support those interests would depend, in large measure, upon her ability to show the American flag in distant waters. A large American fleet of cruisers would not, in itself suffice to give direct cover and protection to any particular trade route; but it would, by its mere existence, give immense support to any confederation of neutral states which had combined for the well-known purpose of thwarting the belligerent rights of a naval power. The American Navy, confined to American waters, is purely an instrument of national defense; spread over the three oceans it may be a rallying point for every state which desires to keep is commerce free in war time. American naval expansion is thus a sort of corollary to the secular American policy, expressed in the time-worn formula, "the freedom of the seas."

This analysis has, however, only dealt with the defense of American trade with Europe. The defense of the Asiatic routes is more easily discussed. Japan absorbs three-fifths of American trade with the Orient; China and the Philippines the remainder. It is in Japan's power to stop all American trade with herself and China, unless and until an American fleet establishes itself in Japanese waters. If this occurs, the Japanese will be wholly and finally defeated, and the restoration of trade will automatically follow the signing of the peace treaty. An addition to America's cruiser strength does not, therefore, greatly affect the naval position in the Far East except possibly in one particular, which is worth examining.

We are familiar with the recent clamor raised in the United States about the British control of rubber production. At first sight this would seem to be a purely commercial question; but, like other American agitations, it can be seen, on close inspection, to have a strategical and military priming. Supplies of crude rubber are of great importance in war, and there can be no doubt whatever, that, in modern war, rubber can be declared absolute contraband. This means that, unlike a great part of America's trade with Europe, her rubber supplies are not protected by the mere fact that they can be transported in neutral carriers. Direct naval protection is always needed for contraband cargoes. America's position with regard to rubber is this. She imports annually about 888,500,000 pounds of the commodity, and of this total 84,750,000 pounds come from Great Britain, 520,000,000 pounds from the Straits Settlements, and 160,000,000 pounds from the Dutch East Indies. Obviously, therefore, the loss of the Straits Settlements supplies would be a very serious matter; the alternative markets of Brazil and Ceylon would never make up the enormous deficit which would be created if the Straits Settlements route were closed.

Owing to the great distance between Japan and the Straits Settlements, it would not be easy for the Japanese to sever communications between Singapore and America, and even if they did so, the rubber trade could be diverted round the Cape, with loss of carrying power, perhaps, but none the less with comparative safety. There is, therefore, a chance that American rubber supplies could be maintained without direct naval protection for the Straits route. Still, the fact remains that an absolutely vital supply of American war material is carried over a route that passes through a zone of the Pacific which might possibly pass into Japanese control; a force of cruisers in the southwestern Pacific would at least give additional security to a trade which might otherwise have to be protected by a costly diversion of commercial traffic.

Hitherto we have related American naval strength to the actual existing arteries of American trade; but this is only one side of the question. Naval expansion, or a naval armament, is justifiable and necessary in proportion to a country's dependence upon sea-borne transport; we have as yet made no estimate of the actual value to the United States of the export and import trade, which the Congressmen and Senators who supported the present bill will plead as an excuse for their projects of naval expansion. It is not, of course, possible within the limits of this article to compare the value of American foreign trade with the total yearly income of the United States; none the less, it is possible to make a rough

estimate of the strategical value of some of the leading export commodities. A country's needs in war are admittedly most complicated; but Mr. Fayle, the official historian of sea-borne trade, has shown (vol. iii, page 478) that the leading export commodities are what maintain a country's exchange at a fair level in foreign countries, and that supplies of iron, copper, coal, meat, flour, and petroleum are the "key" supplies upon which a nation's war industries depend. It will be enough, therefore, if we examine America's position with regard to these vital commodities. The facts are best shown in tabular form:

Commodity	Export in thousands of dollars unless otherwise stated.	Import in thousands of dollars unless otherwise stated.	Production in thousands of dollars unless otherwise stated.
Lead	98,624(tons)	7,021(tons)	766,969
Iron	144,262	16,207	900,267
Copper (ores, scrap & products)	161,166	84,270	237,735
Coal and coke	107,035	518,562	1,373,665
Cotton	1,059,752	Small	2,354,730
Wheat	258,023 (thousands of bushels).	—	984,236 (thousands of bushels).
Petroleum and products	472,643	107,694	1,270,000
Meat	592 (millions of lbs.)	Small	6,156 (millions of lbs.).

These figures show quite conclusively that, with the exception of the rubber supplies route, America has no vital strategic interest in any artery of foreign commerce. Her production of every vital commodity so far exceeds her imports and exports of the same commodity that the mere closing down of a foreign source of supply would never produce a shortage, or seriously affect the exchange value of her currency. Indeed, if American export markets were ever closed, it would be in America's power to adjust an unfavorable balance of trade by a drastic reduction of imports which the country would hardly feel.

This somewhat lengthy statistical analysis has been necessary in order to prove a point which we consider of primary importance. The United States is not driven to the naval expansion foreshadowed in the present cruiser bill by any dependence upon foreign trade. Her import and export commerce are doubtless sources of wealth and influence to very powerful industrial interests; but they make up so small a proportion of the total wealth of the United States, they are strategically so unimportant, that America cannot be said to be driven towards naval expansion by any military necessity. The policy embodied in the phrase, "a navy second to none," and its numerous derivatives expressed in press campaigns, inspired articles, and fleet exercises designed to prove naval weakness, are all political products. Their sources and origins are not to be found in any military or naval requirements.

The Political Consequences of the Bill.—Having proved this point, we have still to examine the political consequences of American naval expansion. If effect is given to the general policy of building up a cruiser tonnage equal to Great Britain, the United States will, about ten years from now, possess a cruiser fleet of some sixty units. Of these, about fifteen will be required for service with the fleet; the remaining forty-five will be available for dispersion over the oceans of the world. It is, of course, far too early to make any forecast of the manner in which this powerful surplus will be distributed; but the point to remember is that, owing to her strategical independence of foreign trade, America will always be able to keep this surplus concentrated at any place which for the moment appears to be politically important. Great Britain will always be compelled to divide her cruiser forces along her vital lines of communication, and will not, without doubling her cruiser forces, ever be able to equal America's cruiser concentration at any particular point. Japan will be at an even greater disadvantage. Her total cruiser force consists at present of sixteen fairly modern and two old vessels: her home defense problems are so urgent, the need of maintaining naval control of the Sea of Japan is so vital to her, that she will never have more than ten or fifteen cruisers to spare for the defense of any particular trade route. None the less, Japanese policy is not likely to be affected by American cruiser building for the present. The animating principle of Japanese foreign policy is the idea that a powerful western state might establish itself at her doors: an accession of American cruiser strength will not, for the time being, greatly assist the American navy to "bridge the Pacific"; and that, for the moment, is the principal Japanese concern. If, however, the present bill is

followed by others, until America possesses a sufficient surplus of cruiser strength to station a powerful squadron of 10,000-ton cruisers to the south-western Pacific, from where they can threaten Japan's oil supplies from North Borneo, then Japan will meet the threat with a resolute program of cruiser expansion. Commander Ichiro Sato has recently shown that the Borneo-Japan route is one of vital strategical importance to Japan; and we may take it for granted that the Japanese Government will never allow the freedom of that route to be jeopardized by the naval expansion of the United States. They will build ship for ship with the resolution they have always shown when they have felt that their national security was in danger.

Conclusions.—In the light of the facts, necessarily rather numerous, which we have reviewed in the course of this article, we think we are justified in drawing the following conclusions. The present naval bill is only an item in a considered policy of naval expansion. That policy is not forced upon the United States by any military or strategical necessity. With or without a large cruiser fleet she cannot be invaded, and her commerce either defends itself, by reason of its value to other states, or can be left unprotected owing to its unimportance. The origins and purposes of the present bill are, therefore, purely political, and the origins and purposes of its successors will be political also. The international consequences of a great addition to American naval strength are not, for the moment, of any particular gravity. It will not be palatable to Great Britain to find that the "freedom of the seas" is supported in every ocean of the world by powerful squadrons of American cruisers; for that time-worn formula expresses a body of doctrine which Great Britain has always resisted with the utmost vigor. On the other hand, it cannot be said that an unpalatable interpretation of neutral rights in war time absolutely threatens Great Britain's national security. Japan's naval security is not for the moment threatened by the American naval bill, and the Japanese admiralty will not be likely to alter its policy when the bill becomes law. It cannot, therefore, be said that the bill in itself creates a state of naval rivalry. None the less it is fair and justifiable to say that the present American policy of building cruiser tonnage up to the 5 : 5 : 3 ratio will give the United States the power of asserting a complete naval domination over any distant trade route that she may decide to bring under her control. This is a state of things which the Washington treaty was intended to prevent; so that the naval policy of which the present bill is the outcome, attacks the spirit of the treaty by a plausible —though quite unjustifiable—insistence upon the literal meaning of certain clauses.

Editorial Regarding Cruisers

Japanese Press, Tokio, 12 January (A.P.)—The vernacular newspapers, apparently, are viewing the contemplated increase in the number of American cruisers with anxiety, fearing it means another naval armament race.

The *Mainicni,* one of the oldest newspapers in Japan, expresses astonishment that President Coolidge gave his consent to an increase, but says that it may be, as it was in the case of the immigration restriction bill, that the President perhaps acted against his own judgment.

A Metal-Clad Airship for the United States Navy

Engineering, 31 December.—Many will be interested in the announcement in the American papers that the United States Navy Department has placed an order with the Aircraft Development Company of Detroit, for an experimental airship in which the envelope will be constructed of sheet metal in place of the usual rubbered fabric. The order was placed in August, at a price stated to be $300,000 and the contract provides for its completion within 400 days from the date of the order. The metal-clad airship has been suggested on previous occasions, and one, at least, has been built. So long ago as the 'eighties of the Seventeenth Century, Francisco Lana, in a paper presented to the Royal Society of London, suggested a "flying ship" of spherical form constructed of thin brass sheets weighing 3 oz. to the superficial foot. Taking a diameter of 14 ft., Lana estimated the weight of the envelope to be 1,848 oz., while the weight of air displaced he calculated to be 2,255 oz. He proposed to exhaust all the air from the envelope, and thus obtained a useful lift of 407 oz. He proceeded to state that by increasing the diameter, while retaining the same thickness

of metal in the envelope, "a kind of ship may be made to swim in the air and carry two or three men in it." Robert Hooke, the experimental philosopher, who was present at the meeting at which the paper was discussed, started that in his opinion the metal sheeting was not of sufficient thickness to withstand the external atmospheric pressure to which it would be subjected, and for that reason the project was impracticable.

A little over two centuries later, in 1894, the Austrian engineer Swartz designed and constructed an airship with an aluminium sheet envelope. This vessel was about 135 ft. long and 42 ft. diameter, and, although partially successful, the death of the designer put a stop to further development. The thickness of the sheeting employed for the envelope was .2 mm., i.e., about .008 in., approximately twice that suggested by Lana. In 1913, at the meetings of the Institution of Naval Architects, the metal-clad airship was the subject of a paper read by Baron Roenne. The airship he suggested was 850 ft. in length and 72 ft. diameter, with a capacity of 3,000,000 cub. ft. and a displacement of 104 tons. The envelope was to be constructed of chrom-aluminium sheeting .016 in. in thickness, weighing 1 kg. per square metre, and with a strength of 25 tons per square inch. Nothing further appears to have been attempted in this case beyond the design of the airship.

The Aircraft Development Company of Detroit has been engaged for some time on the design and experimental work incidental to metal-clad airships, and in September of last year forwarded their first design to the United States Navy Department. The Congressional Committee on Naval Appropriations, while considering the estimates for the present financial year, discussed the design referred to, and reported strongly in favor of airships as an adjunct to the fleet. The committee considered that large airships would develop their greatest utility when employed over the water, their long radius of action, large range of speed, and ability to keep the air for long periods both by day and night, without support from other craft, making them very useful for scouting, reconnaissance, bombing, anti-submarine and convoy duties, and also for transportation and communication with detached units. The committee recommended that provision should be made in the estimates for the current year for two rigid airships of 6,000,000 cub. ft. capacity each, and also an experimental metal-clad airship. The appropriation suggested for the latter was $300,000 and this was approved by Congress and President Coolidge.

According to information which has been published, the airship, which has been named *MC. 2,* will have a length of 150 ft., a diameter of 53, and an overall height of 62 ft. The capacity of the envelope is to be 200,000 cub. ft., and this includes a ballonet of rubbered fabric, whose volume, when fully extended, will be 50,000 cub. ft. The airship will be propelled by two duralumin screws, each driven by an air-cooled radial engine capable of developing 200 h.p. at 1,700 revolutions. A single car about 30 ft. long and 9 ft. wide is to be suspended from the envelope, and on platforms at the rear of the car the engines will be mounted, the distance between the shafts being such that the propeller discs clear each other. Filled with hydrogen, the gross lift is estimated at 13,800 lb., which is reduced to 12,600 lb. when helium is used. The fixed weights are stated to amount to 8,700 lb., giving a useful lift of 5,100 lb. with hydrogen, and 3,900 with helium. The radius of action with a crew of four, is stated to be 1,200 miles with helium, and 2,200 with hydrogen, but the latter figure assumes the partial use of hydrogen as a fuel. When used as a commercial airship to carry six or ten passengers, the radii of action with the two gases become 720 and 1,200 miles respectively. The speed with full power—400 h.p.—is expected to reach 70 m.p.h., and at half-power 53. The ceiling is estimated at 8,000 ft. for helium and 10,000 for hydrogen.

For the erection of the airship, the company are constructing a hangar 110 ft. high, 110 ft. wide, and 180 ft. long, which they expect to have ready in five months. It is proposed to lengthen the hangar to 240 ft. for the purpose of erecting the second airship of the same type, but of 300,000 cub. ft. capacity, an order for which the company is confident of obtaining after completion of *MC.2.* The most interesting details are those of the envelope. Duralumin sheeting of a thickness of .008 in. is to be employed, the sheets being connected together at the laps and butts by three rows of rivets diagonally arranged. The piercing of the holes, insertion of the rivets, and the riveting will be effected in one operation

by an ingenious machine especially designed by the company for the purpose. Compared with the rubbered fabric generally employed for the envelopes of non-rigid airships, the thickness of the duralumin sheeting is about two-fifths that of the fabric, while its weight is 25 per cent more. Its ultimate strength is also nearly ten times as great. So far as the diffusion of gas is concerned, the metal envelope is greatly superior to the fabric, but a small loss of gas on this account will take place through the fabric of the ballonet. Transverse and longitudinal framing as in rigid airships will not be fitted, but internal wire staying is proposed for the purpose of assisting the envelope to withstand the slight excess of internal pressure.

Unlike the ordinary airships, which has two vertical and two horizontal tail-fins, to secure stability of motion when in flight, the metal-clad design is to have eight fins equally spaced around the circumference and at some little distance from the tail. Elevators are to be fitted to two fins on either side, and presumably the four will be operated together by the control wheel in the car. It is stated that model experiments in the wind tunnel have shown that the form adopted for the envelope is a most efficient one for speed, and that in other aërodynamic respects the design should prove satisfactory.

The Aircraft Development Company of Detroit is a relatively young corporation, and one interesting contract it has already carried out is the construction and erection of an airship mooring mast at Detroit for Henry Ford. This mast appears to be somewhat similar in design to the few which have been erected in this country and the United States, but it has an additional and useful feature. A curved girder extends from the masthead nearly to the base, and is fitted outside the general structure of the mast. It revolves with the masthead around the fixed structure, and serves as a vertical guide to the "flower-pot" fitting at the masthead to which the airship's nose is secured. By a suitable system of ropes and sheaves, the "flower-pot" fitting, with the airship attached, can be hauled down to the ground level, engines repaired or replaced, hull structure repaired or renewed, and other modifications carried out, which would be impracticable or dangerous with the airship at the masthead. A second similar mast is being constructed by the company for the United States Army Department. The company is certainly an enterprising one, and the progress which it makes with the construction, completion, and trials of its first metal-clad airships, together with the results of the trials, will be eagerly watched by airship experts and a great number of the general public of America and other countries.

GREAT BRITAIN

The Development of the Mine-Laying Cruiser

Engineer, 24 December.—Seldom has a ship been built behind a greater veil of secrecy than the new mine-laying cruiser H.M.S. *Adventure,* which was launched at Devonport in June, 1924, and is now undergoing her trials. She has a displacement of 7,260 tons on an overall length of 520 ft., a beam of 58 ft. over her bulges, and a mean draught of 19¼ ft., and there is reason to believe that she has a speed of 27.75 knots and four 4.7-in. guns. Beyond that nothing is known of her, and the wisdom of the admiralty's policy of secrecy is shown by the fact that the French have held up the construction of their surface minelayer *Pluton* "on account of the rapid development of this type"—in other words, until they see what features the design of the *Adventure* actually embodies.

The action of the British admiralty in building a ship costing over a million pounds for the purpose of laying offensive minefields marks a very radical departure from the policy of fifty years. Until Germany showed during the war that mine-laying could be very effective as a form of offence, it was rather looked down upon in the British navy, and it was some time before the service was persuaded to take any part in it at all. For many years it was put into the hands of the Royal Engineers, who maintained a fleet of small steamers which were designed for mine-laying, but were only suitable for inshore work, at entrance of the ports to be defended. The mine, in fact, was regarded as essentially a defensive weapon, a weapon only suitable for a navy whose strategy was passive by nature. As an object-lesson, the enthusiasm of the Russian navy for mine-laying, and its well-known preference for staying in port, was pointed out by every strategist.

It is true that Russia was the first country whose navy took to the mine really seriously and brought it to any pitch of perfection. It is probable that in mining work they led Europe right up to the time of the 1917 revolution, and it is possible that some of the mines that were laid during the Czarist régime have been swept for ineffectively many times and are still capable of doing damage. It was, accordingly, only natural that the first European men-of-war to be designed especially for mine-laying should fly the Russian flag—the *Yenesei* and *Amur,* which were built at the end of last century. They were not merely mine-layers, as they were also designed to act as torpedo transports for the supply of the fleet. They were useful vessels with a displacement of 2,500 tons and a nominal speed of 17½ knots, although actually neither of them got within a knot of it in service. They were armed with five 12-pounder quick-firers, and a number of smaller pieces which in those days were regarded as being quite sufficient to beat off any destroyer attack. The *Yenesei* was blown up by one of her own mines off Port Arthur at the beginning of the Russo-Japanese War, and this put the whole type under something of a cloud. The disaster was, however, entirely due to the carelessness of the commander in taking cross-bearings.

Germany was the only country which refused to be influenced by this incident, and they carried out a number of experiments with their transport *Pelikan,* which was specially reconstructed for mine-laying. She had a displacement of 2,300 tons, at her best a speed of 15 knots, while she was armed with four 15-pounder quick-firers. As soon as she manœuvered with the fleet it was realised that her speed was deficient, and accordingly she was used for experimental purposes only, and was largely responsible for the quality of the German mines in the early days of the war. After the experience gained with her, the German admiralty built the *Nautilus* of 1906—a ship of just under 2,000 tons with a speed of 20 knots and an armament of eight 22-pounder guns. Her deficiency in speed and gunfire was shown by the fact that she was driven ashore on the Swedish coast by the Russian fleet and afterwards had to be interned. She was followed a year later by the *Albatross,* a ship of a slightly larger displacemen but the same speed and gun-power. In her internal design, however, she was a great improvement of her predecessor, and carried 600 mines against the 200 of the earlier ship.

The experience of the war soon showed that these German mine-layers were too slow and ill-armed for their work, and that the difficulty of convoying them on any offensive operation would be too great for their employment. Accordingly, for laying mines on the British coast, the cruiser *Kolberg* was used, a ship with a speed of 25½ knots, and an armament of twelve 4.1-in. guns. She and many other cruisers in the German, Austrian and Italian navies had been fitted for the carriage of a large number of specially-designed mines. As far as the actual operations were concerned she was satisfactory, but her use for this purpose was most unpopular in the navy, where the officers maintained that a cruiser should be a cruiser, and that they had none too many ships of the type for the duties that they would be called upon to perform. As for carrying out cruiser work while she had her mines on board, the risk of a colossal explosion was obviously too great. The French also soon realised, in the test of war, that the two mine-layers that they had built —the 20-knot *Cerbere* and *Pluton*—were of little use except for defensive work, which might easily be done by tugs or trawlers. These ships had a displacement of only 600 tons, but they carried 140 mines of a special design.

When the war broke out, and it became obvious that mine-laying would have to be carried out on a big scale, it was to auxiliaries that the combatant navies turned. The *Konigen Luise,* a 20-knot channel steamer, succeeded in drawing the first blood in the mining war, although she was soon destroyed when she fell in with a British flotilla. However, she had proved that she could do certain work in certain circumstances, and the Germans commissioned a number of channel steamers as mine-layers. They also made use of the train ferries which usually maintained the service to Sweden. They were deficient in speed and armament, and were only suitable for laying defensive fields, but the railway lines which were already laid on their main deck and the open sterns made it possible for them to lay fields far more quickly than any other ship, given the necessary naval protection. The British also used channel

steamers, and a certain number of small liners. Generally speaking their speed was satisfactory, but their fuel capacity was poor, and they had the disadvantages which always attend the conversion of a merchantman into a man-of-war. Had the command of the sea not been so thorough, the casualties in this branch would probably have been very considerable.

It was Germany which first considered the idea of using submarines for offensive mine-fields, and those that they laid in the Downs, and on the trade routes, caused a good deal of confusion to British shipping. Their essential disadvantage was that they suffered from a small radius of action, and it was in attempting to remedy this that the German admiralty built a class of submarine which shot out its mines after the fashion of a torpedo. These submarines were always giving trouble, but in the distruction of H.M.S. *Hampshire,* with Lord Kitchener on board, by *U-75,* a boat of this type, had an important success. Towards the end of the war Germany evolved a number of types of submarine mine-layers, but, as their mine-laying equipment necessitated the curtailment of the torpedo equipment, they were only of use against merchantmen. For mining the Heligoland Bight, the British navy used a number of submarines of the *E* type, but this involved the sacrifice of the greater part of their fuel by fitting mine tubes in place of several of their saddle tanks. Like most submarine mine-layers up to the present time, they proved that they could be exceedingly useful at short-distance work, but they could not hope to cover a large area.

Practically all the navies of the world have small mine-layers that are capable of doing useful work in coastal waters, and several of them have followed the British lead in converting a number of cruisers that were too old for their real work, but which can cover a large radius of action. The scientific manner in which the Germans laid their mines showed that offensive operations could only be carried out by a ship that was practically perfect for her purpose, and such a ship cannot be obtained unless she is specially designed. Even on the meager facts that the admiralty has published, the cruiser mine-layer *Adventure* is obviously an important example of her type, and when the authorities choose to divulge her details they will be followed with the very keenest interest in every navy. In the meantime it is understood that she is to undergo a long series of trials, and that a large number of problems, which have hitherto been worked out only in theory, will be settled as definitely as they can be in peace time.

Naval Notes

Journal de la Marine, Le Yacht, 25 December.—The Palmer Shipbuilding and Iron Company, of Yarrow, has just received an order for a cruiser. Two other cruisers will be built by other private shipyards. The Vickers firm will build a mother-ship for submarines of large dimensions. As to the six submarines, type provided in the 1926-27 section of the program of July 1925, they have been distributed as follows: Vickers, at Barrow-in-Furness, 3; Beardmore, at Damuir, 2; Chatham Navy Yard, 1. The appropriations voted are £60,000 for the first five, and £21,700 for the sixth.

Orders are still to be awarded for two cruisers of 10,000 tons and 8,000 tons, a repair ship and four motor boats.

It is stated that the admiralty has decided upon a plan for two or three gun boats intended for the channels up the Chungking.

This plan it is understood, has been inspired directly by the *La Grandière,* which is considered by all foreign officers as particularly successful. The plan will differ from it only in the following specifications: draft, .65 to .7 meters: two (semi-diesel?) motors; one gun of 76 mm.

The *La Grandière,* which entered the service in 1923, has a draft of .5 meters; length, 27.4 meters; width, 5 meters; displacement, 45 tons. She is propelled by an oil motor of 220 H.P. and has two machine guns.

The first mine-laying cruiser, the *Adventure,* will soon be finished. The ship was begun in 1922, launched in 1924; her displacement is 6,740 tons and she has an anti-submarine bulge; her 40,000 CV give her a speed of 27.75 knots.

The battleship *Ajax,* which has been sold, left Portsmouth on December 7, in tow for Rosyth, where she will be destroyed.

According to certain reports, the work on the Singapore base will be finished in less than three years, although thus far only

preliminary work has been done at an expenditure of £250,000.

It is stated that the Japanese press has begun a violent campaign against the building of said base, the object being to lead England to give it up for a policy of cooperation in China.

British Ship Building

Christian Science Monitor, London, 19 January.—Spectacular as has been the shipping boom it seems now likely to be eclipsed by the remarkable developments in the shipbuilding areas of Great Britain and Ireland. The result is seen very clearly in the town of Sunderland where no fewer than twenty orders have been placed, thus transforming the idleness of the River Wear to a scene of considerable activity.

It is the more noteworthy as this district has been almost on its last legs for work and, as recently as the end of October, out of the fifty shipbuilding berths on the river, only ten were occupied and of these ten four berths held ships on which work had been suspended throughout the year.

The demand at the moment seems to be for cargo ships of about 6,000 tons. Nearly all the activity in the freight market is so far in the cargo business which the "tramps" can handle. This class of business has been very slack for the last two or three years, and the northeast coast shipyards, which have always set out to build the cheapest vessel for this trade, have been very badly hit. Hence the feeling of relief at the sudden turn of the tide in their favor.

FRANCE

Preferable Tonnage for Cruisers

Revue Maritime, November, 1926 (pp. 577-582).—The construction of rapid cruisers now brings up a question that has come up before in connection with other classes of ships.

Given the financial resources which allows of the construction of a specified total tonnage of cruisers: is it better to distribute that tonnage into a small number of units or into a larger number. In other words, is it better to have two cruisers of 5,000 tons each than one of 10,000 tons?

So put, the question would assume in the first place a certain number of conditions. We should have to assume that speed (which is the predominant characteristic) is the same for all the ships. Then, we must not compare protected ships with unprotected ships, nor ships having a short radius of action with ships having a longer radius of action, etc. In other words, we should have to compare ships that are comparable. Even so narrowly limited, the problem is not easy to solve, for it would lead to a complete series of preliminary drafts.

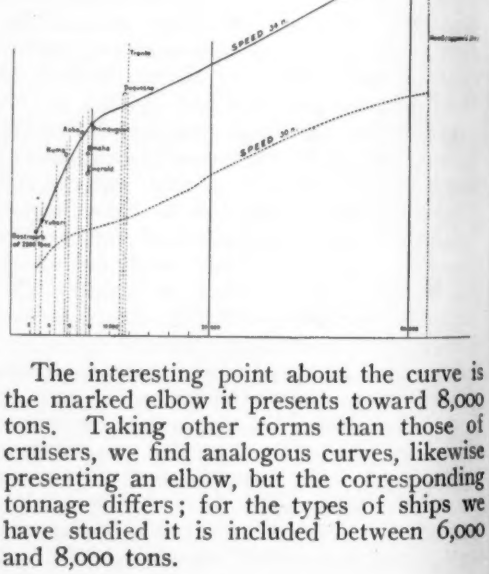
Without going so far as to give a complete solution, there is a very important known factor that will throw light on the comparison: that is the propulsive power necessary for ships of different tonnage to attain a given speed.

Such comparison can be made rapidly if we limit ourselves to a series of ships homologous in shape. Knowing the skin and residuary friction by dock tests on the hulls, we can find the total resistance and the propulsive power for homologous hulls of different displacement at a given speed.

This task we have performed taking hulls of different shapes (rapid cruisers and torpedo boats).

It is sufficient to give results for one series of hulls; the others are of the same kind.

We give here the graph as a function of displacement for a constant speed of 34 knots. (The plan of the shapes to which this graph corresponds is that of a French cruiser).



The interesting point about the curve is the marked elbow it presents toward 8,000 tons. Taking other forms than those of cruisers, we find analogous curves, likewise presenting an elbow, but the corresponding tonnage differs; for the types of ships we have studied it is included between 6,000 and 8,000 tons.

This elbow has its "raison d'être." If the curve of $\frac{R}{V^2}$ is traced as a function of $\frac{V}{\sqrt{L}}$ it shows, for high values of V, a characteristic rise which begins before the raising of AN from the water is attained, and ends when the speed, having become very high, brought about the complete raising of N. It is to this habitual rise of the curves of $\frac{R}{V^2}$ that that elbow of the graph of power as a function of displacement corresponds.

On the whole, the graph may be thus translated: above the elbow, the power increases slowly with displacement and almost according to the law that HP=HPo+KD. For this part of the graph, we may almost write HP=80,000+2.75D; for 6,000 tons that would give: HP=95,000 horse power, which is fairly close to what we actually find on constructed ships; and for 10,000 tons, HP=107,000 horse power, which is very near to what is found in practice. Naturally, all these figures are in no way precise; they are approximate.

In order to facilitate comparison with reality, the graph includes also the power of the most recent rapid cruisers. Although the data we have for foreign navies are somewhat lacking in precision, there is sufficient agreement, at least as an average tendency, with what the calculations show. Table I summarizes the data of said ships:

TABLE I

Name of Ship	Displacement (tons)	Power (CV)	Speed (knots)	Power (Per ton
Torpedo boats of 2,500 tons	2,500	50,000	35	20
Yubari	3,100	55,000	33	18
Kuma	5,500	90,000	33	16.4
Aoba	7,100	100,000	33	14
Omaha	7,500	90,000	33	12
Emerald	7,550	80,000	33	10.6
Duetay-Trouin	8,000	105,000	33	13
Duquesne	11,000	120,000	34	11
Trente	11,600	140,000	35 to 36	12
Cruisers of 20,000 t.	20,000	135,000	34	6.8*
Hood (supposed 34 n.)	42,000	185,000	34	4.4

* estimated

It will be realized, from Table I, that the propulsive power per ton of displacement, which is very high for ships from 2,500 to 3,000 tons, begins to attain an acceptable figure only toward 8,000 tons. It then goes down to about 12 HP per ton—and continues thereafter to decrease slowly.

To extend that curve, we calculated what would be approximately the skin resistance of hulls of 20,000 and 40,000 tons, and we indicated on the graph the power of 185,000 h.p. which would be approximately what the *Hood* would have demanded to attain a speed of 34 knots.

Another way of getting an idea of these results consists in calculating the fraction of displacement to which corresponds the weight of the engines.

Supposing the weight of the engines is constant and equal to 20 kilos per HP, which is very near being true for all cruisers,—excepting battle cruisers, for which this figure would be somewhat low—the above graph, changing scale, evidently represents likewise the curve of those percentages as a function of displacement. But a table is more clear (Table II).

TABLE II

Ships	Displacement (tons)	Percentage of displacement devoted to engines
Torpedo boats of 2,500 tons	2,500	40
Yubari	3,100	35
Kuma	5,500	33
Aoba	7,100	28
Primauguet	8,000	25
Duquesne	11,000	22
Battle cruisers of 20,000 tons	20,000	18—with 20 kilos per HP
of 40,000 tons	40,000	14—with 30 kilos per HP

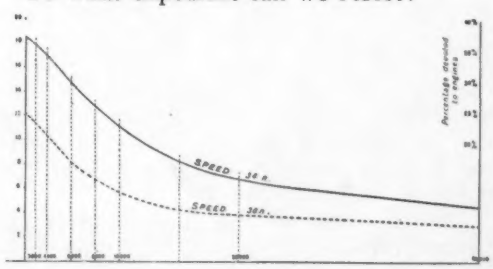
* Or 10,000 tons plus a fraction of the weight of fuel and reserve water for the service of the engines and boilers.

If we now return to our study of the light French cruisers and accept as a statistical fact that this type of ship is characterized by an average fraction of 25 per cent of engine weight (in fact varying from 21 per cent to 27 per cent in the types studied), it will be seen that it is only above 7,000 tons that we come within the limits of that percentage and it is only about 9,000 to 10,000 tons that we can count on remaining between 22 per cent and 24 per cent.

As the maximum tonnage of those cruisers has been fixed by the Washington conference exactly at 10,000 tons, it will be seen that this limit is far too low to allow of variety in building ships.

All displacements below 10,000 tons are disadvantageous, more so because the tonnage is inferior.

To what expedient can we resort?



The first expedient would consist in diminishing the speed and keeping it, say, at 32 to 30 knots, instead of at 34. Should we accept 30 knots, the elbow of the curve of power, which shifts toward lower displacements as the speed is lowered, would be at about 5,000 tons; the margin left available up to 11,000 tons would be broader, and the tonnages from 7,000 upward would be of interest. In fact it is the solution accepted in Holland with the *Java* type. With an even lower speed of 28 knots, the tonnages from 5,000 upward would be of interest, and in fact it is this tonnage that proved satisfactory to the builders of the English series D, or of the *Köln,* to make well balanced cruisers.

But it does not appear that we shall follow the road of speed reduction.

The other expedient is that of reaching a higher displacement, making it possible to obtain a really low engine percentage. But if we adopt that course, the ships will (under the terms of the Washington conference) be classed among ships of the line. Certain it is that so long as we remain in th neighborhood of 10,000 tons the characteristics will continue to be those of the light cruiser. To adopt for light cruisers a tonnage reserved for ships of the line would be a loss. Logically that would lead to building ships of more than 10,000 tons no longer having the characteristics of light cruisers, that is to say, having those of battle ships. This amounts to saying that we should face, from the very outset, the limited tonnage of 35,000 tons, which after all is not sufficient to build a successful battle cruiser.—Raclot, *General Engineer*

Naval Notes

Aviation

The Biggest Hydroplane in the World

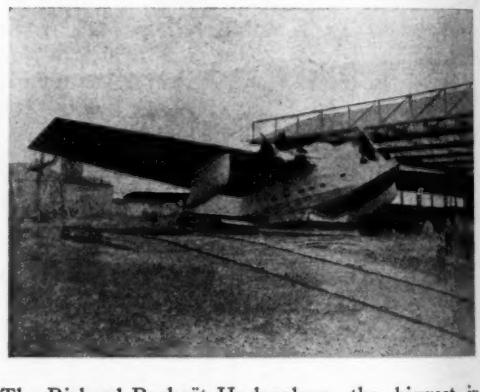
La Revue Maritime, December, 1926.—It is to French industry that the honor is due of having constructed the biggest hydroplane made to date. As has been done by several ship builders, the *Chantier et Atelier de Saint-Nazaire Penhoët, which* recently launched the largest ship, the *Ille-de-France,* plunged into airship building and succeeded, at the very outset, in building a giant machine which will bear the name of *Richard Penhoët.*

The promoter of this innovation is M. Godart, director of the dock-yard; the engineer who made the plans is M. Richard. The four Jupiter motors of 420 CV each which propel this splendid machine are placed in line on the leading edge of the thick wing; a fifth is over the hull ahead of the pilot's post; the supporting surface is 275 sq. m.; the total span is 39.40 m. The hull, 27 m. long, is made of braced wood and is very carefully finished. It has two floors and, in addition to the crew of five, it can accommodate eighteen passengers.

Notwithstanding its considerable weight of sixteen tons, the machine starts rapidly and attains a speed of 1,000 in ten minutes, its ceiling being 4,000 meters.

Thanks to its 5,000 liters of fuel, it can maintain a speed of 160 kilometers an hour for ten hours, carrying twenty-three persons and their baggage under conditions of comfort and security heretofore unknown.

The Marseilles-Algiers service for which the machine is intended will thus be reduced from twenty-five to five hours.



The Richard-Penhoët Hydroplane, the biggest in the world. Built by the "Ateliers et Chantiers de Saint-Nazaire Penhoët.

Naval and Military Record.—France has remarkable assets for aërial warfare. Nevertheless, a weak point remains, namely, the powerlessness to complete within reasonable time the seaplane-carrier *Bearn.* She was originally a 25,300-ton battleship of the *Normandie* class and called *Vendée,* the proud name of the native province of the grand old man of France, Clemenceau. Her appellation became subsequently *Béarn,* in memory of good King Henry IV. She was laid down in 1914, abandoned during the war, launched in 1920, and in 1921

it was decided to convert her into a "porte-avions." At first she was to be ready in August, 1925. Improvements, unfortunately, were thought of, and she was to be delivered in August, 1926, with a delay of one year. Further improvements have, however, been discovered and, from latest genuine information, that much improved sea-plane carrier is, it appears, to be delivered in May next! Admiral Violette is known to be anxious for the completion of the *Béarn*, that will be used not only as a fleet unit, but also as a school ship. A satisfactory point is that the various sea-planes (over 100) the *Béarn* is to carry have all been tested and will be ready to be shipped with trained officers next spring.

JAPAN

Naval Notes

Revue Maritime, November, 1926.—Aboard the submarine *B-16* trials have been made with a periscope enlarging six diameters, which renders it possible to see correctly as high up as 1,000 meters.

It is understood that the tests have been satisfactory.

Admiral Takarabe, minister of the navy, is supposed to be in favor of the creation of a Department of Aëronautics in his own ministry, and appropriations are stated to have been included for that purpose in the budget for 1927-28.

For the present, air questions are handled by a lieutenant commander who forms part of the Bureau of Naval Affairs, while in the Ministry of War an Air Department has already been created, headed by a general officer.

Baltimore *Evening Sun*.—Admiral Hyo Takarabe, navy minister, replying to an interpellation in the house of the diet today regarding the navy budget, declared the original intention had been to build thirty-two auxiliary vessels, but that restricted funds forced a reduction to twenty-six.

Admiral Takarabe declared that in spite of the reduction, the defensive strength of the navy was assured because it intended to improve the type of projected vessels.

Christian Science Monitor, 22 January.—Only three months have passed since the enforcement of military training for young men, yet it is said that its future is not promising. In the beginning the attendance was fair, owing to the effect of propaganda, but the number has diminished nearly by half. In some localities, the training has but few in attendance.—*Osaka* (Japan) *Mainichi*

GERMANY

German Armed Forces

London *Times*, 11 January.—The military and naval estimates for the financial year 1927, which were published during the Christmas holidays, have only just begun to receive public attention. Both show a considerable increase on 1926, the military estimates having gone up by about 7,000,000 marks (£350,000) and the naval estimates by 30,000,000 marks (£1,500,000). Some interesting figures as to the composition of the Reichswehr have been made public. The army is composed of 3,798 officers, 20,671 non-commissioned officers, 74,229 other ranks, 202 officials, 1,100 other employees, and 50 medical and veterinary officers.

The staff of the Reichswehr ministry consists of 216 officers, 239 non-commissioned officers, 229 other ranks, 332 civilian officials, and 313 clerical staff. The *Frankfurter Zeitung*, in the course of an analysis of these figures, observes that Germany's comparatively small army appears to require a comparatively big head.

The details given in the estimates are insufficient for accurate conclusions, but the increases in the various sums allotted have given rise to a good deal of misgiving. The sum of 10,600,000 marks (£530,000) is provided for artillery practice, but further particulars are wanting; 3,800,000 marks are allotted for the autumn maneuvers and 2,100,000 marks for military journeys. The amount estimated for munitions totals 32,400,000 marks, of which 10,000,000 marks is for rifle and machine-gun, 18,000,000 marks for artillery, and 4,400,000 marks for trench-mortar ammunition. An interesting item is 3,100,000 marks for gas masks; the amount to be spent on fortresses is given as 3,200,000 marks and the amount for the purchase of new armaments is 40,000,000 marks. When the estimates were before the Reichrat in December it was stated that the increases were mainly due to the rise in wages and prices, but this has been called into question, more especially since it has been discovered that

year by year there has been a steady increase in the estimates as a whole. The expenditures of 1926, for example, exceeded those of 1925 by 64,000,000 marks (£3,200,000).

The increase in the naval estimates is mainly due to sums on account for the building of new ships. The bulk of the money is required for the replacement of obsolete vessels, in the present instance four light cruisers and twelve torpedo boats. It is observed that the cost of building warships rises continually and a section of the press asks whether, apart from coastguard and scientific services, Germany's expensive navy can be said to serve any useful purpose.

Germany to Build Two Large Steamers

Christian Science Monitor, 21 January.—Hamburg (Special Correspondence)—The news that the North German Lloyd has just placed orders for two new ships of 46,000 tons each, representing an improvement and enlargement of the *Columbus* type for the service between Bremen and New York, has aroused no small astonishment both in Hamburg and Bremen. German shipping experts are asking what special grounds the North German Lloyd can have had in resolving upon this remarkable new departure. It is acknowledged that the *Columbus* has been a great success, but the projected new ships, the *Bremen* and *Europa,* are each to be 11,000 tons bigger than the *Columbus.* The director, Herr Stimming, protested at the Hamburg press meeting that the *Columbus* could not by any means be regarded as a mammoth ship, a hint that he was already contemplating the construction of an even larger vessel. "The question is," says the Hamburg correspondent, "whether the building of such giant ships will really prove economically remunerative considering the present state of the world's shipping industry and its prospects for the near future."

It is conjectured that the North German Lloyd may have been influenced in its resolve by the alleged intention of certain British and Italian companies to build bigger ships in future, the *Royal Mail,* for instance, being credited with plans for the building of a 60,000-ton vessel. Whether the Lloyd is prompted by a desire to compete with British companies or whether it wishes to increase its prestige as compared with the Hapag, is a debatable point. The Bremen company would, however, hardly be likely to spend $20,000,000 to $25,000,000 on two new vessels out of motives of prestige alone without being convinced that the ships would pay their way.

One of the new ships is to be built in the yards of Blohm and Voss in Hamburg, the other by the Weser Company in Bremen. As the Hamburg Vulcan has also got the new order for two 12,000-ton freighters, to be built for the North German Lloyd, the prospects of employment in the Hamburg docks are much rosier than they were a month ago.

ITALY

Mussolini Plans Monster Air Fleet

New York *Times,* 25 January.—Paris, January 24—Advices from Italy indicate that Mussolini, who is minister of air, as well as holding most other Cabinet portfolios, will make a great effort in the course of the next few months to conquer second position in the air, at present held by the United States. France is first and England third.

No fewer than 1,600 military airplanes are on the schedule. In the spring Italy will have 182 squadrons of airplanes and dirigibles, with a personnel of 2,310 officers and 24,000 men.

One of the principal preoccupations of the Italian General Staff concerns the threat in time of war against all important hydro-electric centers.

In the last war Italy had great difficulty in getting coal supplies through the submarine-ridden seas, and it has been the main plank of Fascism to develop Alpine water power so that this chief flaw in the country's armor may be absent in any coming conflict.

Gradually industry is dispensing with coal, relying more and more on electrical energy, but at the outbreak of hostilities a few enemy bombing planes would suffice to destroy the water barrages generating this power. Therefore a special staff of army engineers has been established to concentrate on methods of protection. This staff is also superintending the creation of vast gas and coal dumps in case all power should be cut off by hostile air raids.

Another section of the General Staff has drawn up a secret memorandum on an immediate offensive and defensive rôle for the

air force on the outbreak of war. During mobilization and concentration this force must ward off enemy planes, protect the big cities and centers of industry, and, above all, the chief water power establishments.

The headlong dash of the Germans into Belgium has in no way been lost on Signor Mussolini, whose plan is to paralyze the enemy at the very outset by means of a terrific air offensive. Every Fascist air cadet is being taught, accordingly, that his first main duty is to destroy the enemy's machines before they leave the ground. Finally, the air minister has taken measures for instantaneous requisitioning of civil airplanes on the outbreak of war and their transformation into military machines.

Naval Notes

La Revue Maritime, November, 1926.—The Italian navy, which is preparing feverishly—but with a discreetness that deserves attention—for a conflict which they believe certain in the near future, obviously attaches much importance to the mooring of submarine mines as a defensive and offensive arm.

The first series of mine laying ships includes the *Fasana,* which recently entered the service, the *Buccari,* the *Durazzo* and the *Pelagosa,* all of them almost finished. These ships displace about 600 tons, have a speed of ten knots, are equipped with one 76-mm. gun each and carry each 200 mines on deck.

The second series, which it appears is to consist of ten units, is of the *Legnano* type, launched in May last. These ships likewise carry 200 mines on deck each, but their armament consists of two guns of ten centimeters; their speed is fifteen knots and their displacement 700 tons.

It should be added that Italy still has several older ships of a special type, and has converted into mine layers the cruisers *Quarto, Nino-Bixio, Marsala, Ancona, Bari, Taranto,* with 120 mines each; all light scouts and about ten destroyers of the *Palestro* and *La Masa* type.

Naval and Military Record.—The well-managed Italian admiralty is second to none in its effective appreciation of the mine. Realistic tests in the course of recent maneuvers revealed to peninsular experts the far-reaching possibilities of mining warfare in the strenuosly studied field of Mediterranean tactics as directed against the nominally superior power of France. All cruisers and destroyers have been fitted to carry mines, of which there are 120 in the ex-German 5,000-ton cruisers and 200 in the *Marsalas.* In imitation of what the Germans did, all new submarines of the *Ballila* class (1,300-1,600 tons), while being superiorly armed with guns and torpedo tubes, also carry mines of heavy type. Italy is also preparing mining flotillas, comprising only small ships, economical and quick to build, easy to handle in shallow waters, offering diminutive targets, and, from their numbers, available on several fronts at a time. There are built or building in the dockyards of the peninsula some fifteen minelayers of 600 to 700 tons and ten to fifteen knots, to carry 200 mines each, together with weapons of three-inch and four-inch bore. Such craft are in some respects similar to the excellent *Pluton* and *Cerbere* of the French navy, which were of 594 tons and cargo-boat shape, and did good mining service during the war. This type has been abandoned by the French navy mainly as a result of the instability and continuous changes of views inherent in the French republican régime; but observing Italians adopted it, well knowing the essentially risky mining business has become more so as a consequence of aërial progress. Moreover, in the Western Mediterranean distances are short, mining will take place by night, and mine supply will be near at hand.

ENGINEERING

Monel Metal: Its Influence on Ship and Engine Design

The Shipbuilder, January, 1927.—The great interest aroused by the publication in the October number of *The Shipbuilder* of the details of the high-pressure turbine steamship *King George V.,* and the important part which monel metal is known to have played in the construction of the propelling machinery of that vessel, have created a desire on the part of many readers for more information concerning this somewhat unique engineering material than was contained in the earlier article. There seems no doubt that, if the latest practical developments and present experimental data prove anything, they go to confirm the view previously held that the advent of monel metal opens up a vista of new possibilities in the field of high-temperature steam design, with

great advance in final terms of high efficiency and reduced running costs.

In these days, when the balance of advantage between the steam engine and the internal-combustion motor swings so evenly that experts are divided as to which type of propelling machinery to put forward for many classes of ships, any factor permitting higher steam temperatures, and consequently greater efficiency, may be decisive, and must certainly be examined very carefully.

Fuel consumption per B.H.P. per hour is a vital factor, and the performances given in Table I may be taken as typical.

TABLE I.—FUEL PER B.H.P. PER HOUR.

Type of engine	Coal	Oil
Diesel engines	—	.4lb
Quadruple-expansion reciprocating engines	1.25lb	—
Quadruple-expansion reciprocating engines exhausting into low-pressure turbines	.87lb	—
Turbines with steam at 250lb per sq. in.	.95lb	.71lb
Land power-station turbines—steam at 720° F. and 550lb per sq. in.	.72lb	—

To obtain the greatly increased economy effected by the use of highly superheated steam under the limitations imposed on board ship, without sacrifice of safety and reliability was the problem which confronted the designers of the *King George V.*, and on the success of this step towards higher steam pressures future developments may be said to hinge. The vessel carries not only the greatest steam pressure (550lb per square inch) but also the highest superheat (750° F.) yet adopted on any ship.

The makers of the turbines and boilers—the Parsons Marine Steam Turbine Company, Limited, and Messrs. Yarrow and Company, Limited—have naturally used every resource at their command to make their respective units as durable and safe as the exacting requirements of ocean-going ships demand. It is, therefore, instructive to note that the vital moving and controlling parts in the boilers, steam line and turbines are made of monel metal. This material is used for the valves, valve seats and spindles both on the Yarrow high-pressure boilers and the steam line, as well as for the turbine blades and shrouding on (*a*) the high-pressure ahead turbine, (*b*) the first and second intermediate-pressure turbines on both sides, and (*c*) the astern impulse blading. Lastly, it may be added that monel metal condenser tubes are fitted in one of the surface condensers.

The reasons for this extensive adoption of monel metal lie in its combined qualities of resistance to corrosion and strength at high temperatures. In the very active search for corrosion-resisting materials which the modern engineer so assiduously pursues, a material is welcome where such valuable qualities are intrinsic and do not depend on heat treatment or surface finish. That this is true of monel metal is explained by its composition, which, for practical purposes, may be given as two-thirds nickel and one-third copper.

The further valuable quality of strength at high temperature is best exhibited in the diagram given in Fig. 1, in which the strength of several engineering metals are charted at various temperatures. The tests were carried out in a standard testing machine. The specimens were raised to and held for thirty minutes at each particular temperature without load, and were then broken at the usual speeds.

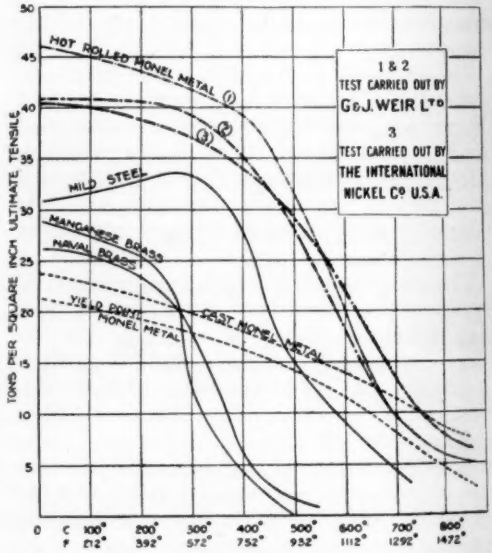

TONS PER SQUARE INCH ULTIMATE TENSILE
HOT ROLLED MONEL METAL (1)
(2)
(3)
MILD STEEL
MANGANESE BRASS
NAVAL BRASS
YIELD POINT MONEL METAL
CAST MONEL METAL
1 & 2 TEST CARRIED OUT BY G & J. WEIR LTD
3 TEST CARRIED OUT BY THE INTERNATIONAL NICKEL Co U.S.A.
C 100° 200° 300° 400° 500° 600° 700° 800°
F 212° 392° 572° 752° 932° 1112° 1292° 1472°

Fig. 1

At 750° F.—the crucial temperature in steam practice today—it will be noted that the relative strengths are as follows:

Monel metal ..... 35 tons per sq. in.
Mild steel ..... 28 tons per sq. in.
Brass ..... 5 tons per sq. in.

Further tests carried out at the National Physical Laboratory on actual turbine blad-

ing, as drawn and supplied commercially, gave the results stated in Table II.

TABLE II.—TESTS ON TURBINE BLADING.

	At 60° F.	At 750° F.
Ultimate stress....	41.9 tons/sq. in.	36.4 tons/sq. in.
Yield point.....	37.7 tons/sq. in.	31.2 tons/sq. in.
Elongation on 2 in.	24 per cent.	16.5 per cent.
Reduction of area..	60 per cent.	60 per cent.

In addition to strength, however, the ideal turbine blading must be able to withstand heavy vibration, and even shock, without breaking. It is important to note that monel metal is one of the toughest metals known. In the Izod testing machine it has withstood an impact of 115 foot-pounds without rupture—a performance only equalled by the softest of wrought iron. This toughness has been strikingly exhibited in service on more than one occasion when mishaps have befallen turbines containing both monel metal and bronze blades. The former have been straightened out cold and replaced; while the latter, when not actually fractured, have been so severly damaged as to require complete replacement.

As for wear and tear, attention may be drawn to the photograph reproduced in Figure 2, which shows the monel metal turbine blading of one of Messrs. Weirs' high-speed feed pumps. This photograph was taken during an overhaul after six years' continuous service in a French power station under a pressure of 227.5 pounds per square inch and a temperature of 660° F. The blades are reported to be almost as good as when new, and the turbine is now back at work and fit for many years' further duty.

If, therefore, monel metal gives in the *King George V.* the same effective service as it has already given in many of the largest power stations, there will be a general demand for increased superheats and greater pressures among that large circle of marine engineers who still pin their faith to steam.

To keep these remarks in proper perspective, readers may be reminded that in the post-war refit of the liner *Leviathan*, prior to her being put into the trans-Atlantic commercial service, no less than 25,000 pounds of monel metal were employed. This great quantity ranged over literally every phase of the engine room's paramount requirements; it also included the domestic side of the ship's activities—pantry and galley equipment, table and counter tops, hot plates and artistic finger plates—and even the operating table in the surgeon's quarters. The power of monel metal to withstand serious corrosive action of salt water has long been well known, and equally its resistance to the effects of sea-laden atmospheres. It will be readily appreciated, therefore, how advantageous is its adoption on board ship where such conditions are practically ever present.

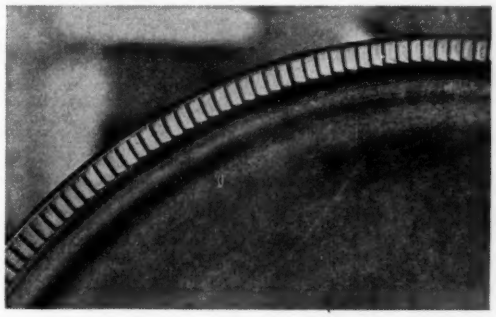


Fig. 2.—Monel metal Turbine Blading After Six Years' Continuous Service

This precedent—already followed by leading steamship lines, including the Canadian Pacific Railway Company and the Cunard Steamship Company—has been developed in the *King George V.* Here monel metal sheet is used in the galleys and pantries for sinks, table tops, hot presses, cooking ranges, etc., made by Messrs. Buchanan, of Greenock, and in the hotwater boilers supplied by Messrs. Stott, of Oldham. Such a wide variety of applications was only made after careful scrutiny of the economies to be effected in maintenance and cost of cleaning, and of the value of the more ornamental and hygienic results to be obtained.

All connected with shipping will await with more than ordinary interest the results of the tests of the monel metal condenser tubes installed in the *King George V.* The ship's equipment in this respect will permit of the most instructive comparisons being drawn. The importance of reliable condenser tubes cannot be exaggerated in ships where superheated steam is used. The smallest leak will raise the salinity of the feed water to a dangerously destructive level, and perhaps there is no field where greater room for improvement exists than in the metal for condenser tubes. The requisites for such a material are well known,

and, so far as recent tests reveal, monel metal gives promise of "coming out on top," now that the production has been carried to the commercial stage and solid-drawn tubes of fine gauge are available. In the severe conditions of service obtaining in Mediterranean waters, they have given surprisingly encouraging results. In one case, where Admiralty-brass tubes had previously lasted only six to eight months, monel metal tubes, of thinner gauge, have already been in use for over two and a half years and show no signs of failure. A notable point is the reduction in weight possible. Twenty-gauge, and in some cases even twenty-one gauge, can be substituted for eighteen-gauge brass tubes—a saving of at least 25 per cent in dead weight.

The far-reaching influence of a material having such universal application cannot be overlooked by those who design or own ships, whether their interest lies in the propelling machinery or in all that pertains to the comfort of passengers and crew. How far this influence will extend cannot yet be stated, for the commercial development of monel metal still continues. Other developments of great technical interest are now emerging from the semi-experimental stage; and when results are sealed with the record of commercial service achieved, it is hoped —by the courtesy of Messrs. G. and J. Weir, Limited, to whom the writer is indebted for some of the foregoing data—to place further particulars before readers of this journal.

AVIATION

New Fiat A-20 Aviation Motor of 400 H. P.

Revista General de Marina, October, 1926, (pp. 703-704).—The Fiat firm has just completed at Turin its official tests of seventy-five consecutive hours, on the station, under full power, with best results.

This is a twelve cylinder motor of type V and cooling, naturally by water, intended to develop 400 H.P. at 2,000 r.p.m., with a weight of 340 kilograms including water, the boss for the propeller and starter.

In the tests that were made the motor developed up to 430 H.P. at 2,002 r.p.m, its weight being 320 kilograms including refrigeration water, boss for the propeller and starter, i.e., it attained 744 grams per H.P. unit, which is really a remarkable result. During the tests, the consumption reached 220 grams of fuel per hour per H.P. unit, from 1,800 to 2,000 r.p.m., and that of oil ten grams per H.P. unit or 4.5 per cent of fuel consumed. At the official test of seventy-five hours on the station, 2,060 r.p.m. were maintained, giving 370 H.P., with an average consumption of 205 grams per H.P. and ten grams of oil.

With the official acceptance of this motor, the 410 H.P. type with 2,060 r.p.m was accepted, and it is hoped that by reason of its light weight, low consumption and resistance it is destined to be installed in machines with long radius of action.

The Fiat firm intends to conduct experiments with other aviation motors intended specially for the service of air lines and strategic explorations.

Duralumin Welding

BY LIEUTENANT COMMANDER WM. NELSON, (CC), U.S.N.

Aviation, 17 January.—The methods of joining metallic materials available to the aircraft builder are either mechanical or thermal in nature. The thermal means embrace forge welding, gas welding, electric welding, soldering and brazing. All of these involve the partial or complete melting of metals similar to or different from the parts being joined. Forge welding and electric resistance welding do not require the use of any welding rod; whereas, all the others depend in whole or in part on the addition of a fused rod.

It is natural that all methods of joining steels have been tried on aluminum and its alloys. Unfortunately, the high thermal conductivity of aluminum and the presence of the oxide film on this metal has precluded the adoption of most of the thermal means of uniting. Welding aluminum alloys by forging appears to be so impracticable that it is doubtful if that means will ever be used. The oxide film which forms on aluminum alloys is so difficult to eradicate that forge welding remains in search of a method. Gas welding is the most successful of all of the melting processes and is covered in detail below. Electric welding of aluminum and duralumin is possible but considerable investigation must be done before this means can be considered to be of use outside of the laboratory. Soldering of this metal has been worked on in laboratories from time to time but that too is still of too experimental a nature to be used in

any production job. Brazing duralumin has not had sufficient demand to make any extensive experiments advisable.

In a broad sense if welding were completely satisfactory it could be used to advantage in joining many parts of all-metal aircraft which are now riveted. In a contracted sense, it could be used only in places where riveting is not cheaper. However, due to the elements of strength, resistance to corrosion, limited fatigue data, and such, the welding of aluminum in aircraft construction has been limited to repairs, manufacture of tanks, manufacture of cowling, etc., and to special non-strength features. Nevertheless, aircraft builders are presented with additional flexibility if the welding of aluminum alloys is within the capabilities of their shops; so, although still experimental in many ways, the use of this light metal in airplanes brings with it a need for knowledge of this subject.

Electric Welding

Resistance welding is commonly known as electric "butt" or "spot" welding. In this process the junction is made by allowing a large current of low voltage to flow through the place to be fused.

Electric butt welding of aluminum or duralumin is not known. Electric spot welding seems to present certain features which have practical application. A complete study has not yet been made, but considerable preliminary work on spot welding duralumin sheet in an automatic steel welding machine indicates that it can be done with a fair degree of success. In some work done recently, the spots were about 3/32 inch in diameter with a tenacity in tension equal to about 500 pounds per spot. Failure occurred by having a spot pull out of the sheets. The metal in the welds appeared to be burned; cracks, pits, and irregularities being the rule. Corrosion tests conducted on samples did not confirm conclusively an opinion that corrosion would concentrate in or near the point of weld. Some samples corroded did show a tendency towards electrolytic action between the metal in the spot and the sheet itself but it was not general.

Electric arc welding consists of using an electric arc to fuse the junction and the filler rod. An electrode of carbon acts as one of the poles in the circuit and the material being welded as the other pole. By proper manipulation of the carbon electrode an arc is struck and furnishes the heat necessary to melt the filler rod and fuse that and the parts being welded. The temperatures produced in the arc are exceedingly high and for that reason this method of welding is not conducive to good results where aluminum and duralumin are concerned.

Soldering

No success seems to have been had in using soft solders with aluminum. This is perhaps due to the failure to break down the oxide film on the basic metal by the relatively small amount of heat applied. Silver solders produce better results on the whole; but, so far, solders sufficiently satisfactory even to produce a joint are not generally available. The plating of the aluminum alloy parts to be soldered seems to be a necessary part of the operation in which case practically any solder will adhere to the plate if the plate will adhere to the aluminum concerned. The value of soldering is reduced further by the corrosion factor. Electrolytic action takes place in the vicinity of soldered joints, so that corrosion becomes a matter of serious concern in a location where everything should be done to avoid corrosion.

Gas Welding

Gas welding aluminum and duralumin is the one that presents the greatest actualities and possibilities in the aircraft industry. Gas welding in an atmosphere other than air may become a matter of general interest later on; but at the present time fusion-joining in air is the more feasible and practical. This particular means employs acetylene and oxygen or hydrogen and oxygen to produce the heat necessary to fuse the metal to be joined. Experience and the size of the material determine whether hydrogen or acetylene shall be used on a job of aluminum or duralumin welding. With relatively thick sheets it is necessary to use acetylene to get the required heat; whereas with very thin sheets, hydrogen serves to better advantage by tending to prevent burning.

In general aluminum sheet and aluminum casting are easier to weld than duralumin. All of these metals have a low melting point with a very small working range of temperature and a great deal of skill is required to produce satisfactory results. The weld as a rule is of a cast structure and contains the

properties of that material, being brittle and subject to fatigue failure. In duralumin the material next to the weld is affected by the heat applied changing the physical properties to a material extent. Buckling, cracking and burning are more likely to occur in welding duralumin than in welding aluminum due perhaps to the changes set up in the surrounding metal by the heat of the torch.

Gas welding of duralumin has not been undertaken with any great degree of confidence by the aircraft industry as a whole. The reasons given are various but in the main it is believed that this lack of interest is due primarily to the difficulties encountered in the making of the welds. With that in mind most of that which follows consists of notes on the design of parts to be welded and the actual making of the weld in aluminum alloys.

First, there are certain design features which are very important in any work involving duralumin welding. Heat treated specimens of gas welded duralumin show a tensile strength of about 30,000 pounds per square inch, with an elongation of 1.5 per cent to 5 per cent in two inches. Heat treating the samples raises the tensile strength to about 40,000 pounds per square inch with no changes in the elongation. Welded duralumin heat treated and with dressed joint has an efficiency of 25 per cent to 80 per cent (55,000 pounds per square inch). So much for the figures. But, to insure satisfactory results the designer must also apply interest to the operation and the following points are material in that respect:

(1) Make all welds as simple and as accessible as possible;
(2) Reduce intersections of welds to a minimum;
(3) Provide for expansion and contraction around welds by means of beads, grooves, dished heads, crowns, etc.;
(4) Use sheet metal or tube fittings in preference to cast fittings;
(5) Fittings should be set in and welded rather than being attached to the outside.

The equipment used for welding with either acetylene or hydrogen is essentially the same as is used for light gauge steel excepting that a lead-burner's torch is used in welding the aluminum alloys. The heat conductivity of aluminum is high so a large torch results in a lack of concentration with consequent jagged and unsightly welds. The small torch demands a smaller hose than the regular full size welding torch which in turn necessitates a reducing valve block. Other than that the equipment is not different from the ordinary gas welding outfit.

Filler rod employed in welding any of the aluminum alloys is usually of the same material as the parts being joined. Where one or both parts are aluminum, commercial soft annealed, pure aluminum wire 1/16 inch to 1/8 inch in diameter is used. The welding rod for casting is an 8 per cent copper aluminum alloy wire. Strips sheared from the edge of sheets serve very well for welding rod, and give a material of the correct chemical composition.

Fluxes Used

The fluxes used in aluminum alloy welding seem to be a constant source of question. Many kinds of fluxes are available in the market with perhaps as many kinds of opinions regarding their relative merits. The principal objections to most aluminum fluxes are that they are too hygroscopic causing a short life or that the melting point is too high or too low causing burning of the metal or of the flux. The following flux has been subjected to experiment and to shop use and should meet most of the airplane builders' needs:

Sodium Chloride, 32 per cent by weight
Sodium Fluoride, 20 per cent by weight
Potassium Chloride, 24 per cent by weight
Lithium Chloride, 24 per cent by weight

This flux produces a sound, clean, uniform weld and permits welding at a more rapid rate than most other compounds will allow. The corrosive action of fluxes cannot be taken into consideration in comparing their relative merits, for all are more or less hygroscopic and, accordingly, active agents in inducing corrosion in duralumin. The merits of the fluxes must be based on the results obtained by their use in making welds.

Flux, as it is purchased, comes in a pulverized form. Owing to the hygroscopic nature of this material it should be kept in sealed bottles only enough being mixed for immediate use. The flux is mixed with distilled water in a porcelain dish to the consistency of a thin paste and is applied to the seam and to the wire with a small brush. It is usual to pre-heat the seam slightly so that the water in the flux will evaporate when applied, leaving the dry powder in place.

WELDING SHEET METAL

Sheet material can be joined by a butt weld, a flange weld, a lap weld or by some combinations of these welds. The flange method is the most common one employed. It consists of bending up the edges to be joined with a flange about three times the thickness of the material and burning down the flange into the seam. In using either the butt weld or the lap weld, the filler rod furnishes most of the material for the joint. In joining fittings to tanks the filled type of weld is usually required.

The preparation of the work for welding starts with the layout of the detail parts. Care in accurately laying out the parts reduces the risks of damage. It is one very necessary essential in the preparation that the edges to be joined be clean. This can be done mechanically with a wire brush or steel wool or it can be done by immersing the edges for about thirty seconds in a hot caustic solution followed by a rinsing in a dilute solution (10 per cent) of nitric acid and that in turn followed by a rinsing in hot water.

The various parts of the job are then assembled, being held in place by clamps (a satisfactory clamp for flanged welds consists of a hinge with through bolt). Note particularly that beads about ⅛ inch deep follow the seams or difficulties with expansion and contraction of the material will result. All parts being carefully changed to form close contact along the seams the work is ready for tack welding.

Aluminum alloys should be welded with a neutral flame. An excess of oxygen will cause the formation of oxides which cannot be controlled by any flux. It is better to use an excess of acetylene than to run the risk of having too much oxygen. The pressures usually worked with are fifteen pounds on the acetylene tank and thirty pounds on the oxygen tank. Having a neutral flame the white inner cone should be kept away from the metal about ⅛ inch and the torch inclined on an angle of about thirty degrees. The operator should endeavor to develop as light a torch as possible and must always be alert for any signs of metal falling away due to the application of too much heat. The forehand method is believed to be preferable to the backhand process. In this method the welder points his torch to his left and works from right to left, the flame preheating the material in advance of the weld.

The job being ready for tack welding, the filler rod is slightly heated and flux applied to the wire. No flux is put on the seams at this time. The torch is then applied to the seam between clamps and the tack welds made, the rod being used to furnish flux and to puddle. Tack welds are made at about one inch intervals. Clamps are removed. The seam is then thoroughly cleaned by means of a wire brush. The flux is then applied to the seam on both sides and to the rod. To make the weld the torch is played directly on the seam, moving it back and forth over a distance of about eight inches until the flux begins to flow. From this point on the method is the same as that used in joining sheet steel excepting that a great deal more care is necessary with aluminum to maintain good fusion and to agitate the molten metal with the wire so that the oxide film is broken.

Constant attention and a great deal of practice is essential to determine exactly when the metal is molten on account of the short temperature range between the melting point and the point where the material burns and pulls out. The determination of the correct amount of heat to apply is a matter of experience and practice and cannot be adequately described to be of benefit to the inexperienced.

Seams in aluminum castings which are to be welded are prepared by cutting away the edges on an angle of about forty-five degrees. The casting is then preheated at a temperature of about 500° F. and the welding rod melted and puddled into the seam. To weld a cast fitting to a sheet, the fitting is first tack welded and then welded to the plate by filling in with the filler rod.

After the welding is completed, the part or parts should be washed in a dilute solution of sulphuric acid or nitric acid and thoroughly cleaned of welding flux. Wire brushing and dressing of the weld are effective in removing the excess flux. Rinsing in hot water is a final essential to remove all traces of the acids and salts.

The inspection of a weld can only be a matter of visual examination without subjecting it to a test for tightness under pressure or without destroying the part. Tanks, etc., can readily be tested under pressure. Etching of welded parts in a hot caustic solution will reveal cracks in the metal. The

common faults with welds can, as a rule, be located by a visual examination, however; cracks, buckling, burns, inclusions, excess flux, unevenness, etc., are the usual common faults. A good weld gives its evidence in appearance to a large extent.

In conclusion, it might be said that gas welding of duralumin presents to the aircraft builder a ready means of joining which should be taken advantage of provided the welds are used where fatigue failures and stress failures are not likely to be encountered. Other thermal methods of joining can still be regarded as experimental insofar as duralumin is concerned.

CURRENT ARTICLES AND PAPERS

On Friday, January 21, Senator Hale made an address on the floor of the Senate on the subject of Naval Appropriations. He gave many interesting statistics contrasting the strength of the United States Navy with foreign navies. He included in his remarks an extensive table showing the capital ships, aircraft carriers, and other combatant ships of the first line of the United States, British Empire, Japan, France, and Italy; submarines of the second line in the navies of the United States, British Empire, Japan, France, and Italy; total tonnage of combatant ships and auxiliaries (by classes) laid down or appropriated for since February 6, 1922 (date of Washington Conference), air strength of principal nations, figures as of October 1, 1926. His speech will be found in the *Congressional Record* of January 21, 1927, pages 2065-2085.

Books

Berkeley, L. M., *North Star Navigation.*

Chapin, H. M., *Rhode Island Privateers in King George's War*, 1739-1748.

Gilbert, Rodney, *What's Wrong with China.* An analysis of the character and habits of the Chinese with a statement on the problems to be faced in effecting a lasting settlement of the present unrest.

Headley, L. A., *How to Study in College.* Suggestions to help the college freshman organize his intellectual life.

Graham, Lt. Col. W. A., *The Story of the Little Big Horn.* Custer's last fight.

Jones, D. L., *Diesel Engines, Marine, Locomotive and Stationary.* A practical treatise on the principles, construction, operation and maintenance of the Diesel engine.

Langmack, H. C., *Football Conditioning.* An illustrated handbook for coaches, students and players.

Mantle, Burns, ed., *Best Plays of 1925-26 and the Yearbook of Drama in America.* Illustrated.

Moulton, F. R., *New Methods in Exterior Ballistics.*

Stoddard, Lothrop, *Scientific Humanism.* Some suggestions for sound thought and action.

Austin, L. S., *The Metallurgy of the Common Metals.* A general outline of the metallurgy of gold, silver, iron, copper, lead, and zinc. Sixth edition.

Black, Archibald, *Transport Aviation.* An analysis of its commercial achievements.

Bowles, George F. S., *The Strength of England.* An attempt to explain the strategic position of England among nations due to her dominance of the sea.

Eden, Anthony, *Places in the Sun.* A narrative of a tour through the British Empire. Brief descriptions of Canada, New Zealand, Australia, and Tasmania.

Example in Navigation for the Use of Cadets at the Royal Naval College, Dartmouth.

Gollomb, Joseph, *Scotland Yard.* Sidelights on the police systems of London, Paris, Berlin, and Vienna. Second edition.

Graham, Walter, *The Beginnings of English Literary Periodicals.* A study of periodical literature, 1665-1715.

Holland, R. S., *Historic Ships.* Interesting facts about ships from ancient times to the present. Illustrated.

Jones, H. A., *Sir Walter Raleigh and the Air History.* A short biography of the historian of Britain's Air Force in the Great War.

Lindley, M. F., *The Acquisition and Government of Backward Territory in International Law.*

Neame, Philip, *German Strategy in the Great War.* A discussion of the more important crises of the war, and their effect on the German high command and German strategy.

Pick, W. H., *A Short Course in Elementary Meteorology.* Writen by a practical meteorologist for the use of aviators.

American Library Association *Catalog*, 1926. An annotated basic list of 10,000 volumes.

Dull, Raymond, *Mathematics for Engineers.* Treatment of those branches of mathematics especially important to engineers.

Grey, Zane, *Tales of the Angler's Eldorado.* Story of fishing in the waters around New Zealand.

Iorga, Prof. N., *A History of Roumania, Land, People and Civilization.*

Lewisohn, S. A., *The New Leadership in Industry.* A discussion that gives the sources of strife between employee and employer, and also remedies that will overcome this trouble between them.

McElwee, R. S., *Port Development.* A discussion of the different phases of port building that are essential for shipping.

Peabody, R. E., *The Log of the "Grand Turks."* A record of the fortunes made in these four American ships bearing the name "Grand Turk" at four different periods.

Magazine Articles

Free, E. E., "The Electrical Brains in the Telephone." Science makes machines that almost talk. *World's Work,* February, 1927.

Durham, E., "The Sarajevo Murder Plot." *Current History,* February, 1927.

Brooks, H. W., "The Carbonization of Coal at Low Temperature." *Scientific American,* February, 1927.

Myer, G., "America's Idealism." *Current History,* February, 1927.

Calverton, V. F., "America's Opportunism." *Current History,* February, 1927. The two articles mentioned above attempt to answer the question, "Is America a Nation of Ideals?"

Turner, R., "Germany's War Guilt Reaffirmed." *Current History, February,* 1927.

Stone, Brig. Gen. F. G., "Locarno, Geneva and the Empire." *Nineteenth Century,* January, 1927.

Sandon, Viscount, "Recent Impressions of Germany." *Nineteenth Century,* January, 1927.

Newman, Maj. E. W. P., "France's Difficulties in Syria." *Nineteenth Century,* January, 1927.

Hurd, Archibald, "The British Navy in Decline." *Fortnightly Review,* January, 1927.

"Augur," "The British Empire." *Fortnightly Review,* January, 1927.

Heathcote, Dudley, "Mustapha Kemal and the New Turkey." *Fortnightly Review,* January, 1927.

Wyatt, Lt. B. H., "The Aviator Maps Our Last Frontier." Alaska yields its golden secrets to an airplane expedition. *World's Work,* February, 1927.

Anon, "British and Japanese Policy in China." Some facts not commonly reported. *Living Age,* January 15, 1927.

Dunlap, Orrin E., "Radio's Silver Screen." *Scientific American,* February, 1927.

White, Capt. C. C. S., "An Unofficial History of the Signal Service With the British Saloniki Force, 1915-18." *Royal Engineer Journal,* December, 1926.

Spencer, G. K., "1926—A Turning Point in American Aviation." *Current History,* January, 1927.

Morgan, H. E., "The Growing Burden of Government Cost of America." *Current History,* January, 1927.

Hayden, Prof. R., "British Imperial Conference Results." *Current History,* January, 1927.

Wright, Prof. Q., "Progress of the Civil War in China." *Current History,* January, 1927.

Brown, Brig. Gen. W. B., "Notes by a Chief Engineer During the Great War, 1915-18." *Royal Engineer Journal,* December, 1926.

Knight, Admr. A. M., "Treaty Cruisers." *Outlook,* December 29, 1926.

Munro, Dana C., "War and History." *Amer. Hist. Rev.,* January, 1927.

Martel, Maj. Gen. LeQ., "Tank Assault Bridge." *Royal Engineer Journal,* December, 1926.

Harrison, Lt. H. B., "Shellfire Versus Permanent Fortification." *Royal Engineer Journal,* December, 1926.

Finnimore, Maj. A. C., "Notes on Protective Gear." *Royal Engineer Journal,* December, 1926.

"The Loss of Heat from the External Surface of a Hot Piper in Air." *Engineering,* January 7, 1927.

From Volume 69 of INSTITUTION OF ENGINEERS AND SHIPBUILDERS IN SCOTLAND, 1925-26.

Taylor, A. J. T., "The Ruths Steam Accumulator."

MacNicoll, Donald, "The Jubilee of the Marine Spring-loaded Safety Valve."

Notes *on* International Affairs

3 JANUARY to 3 FEBRUARY

PREPARED BY PROFESSOR ALLAN WESTCOTT, U. S. NAVAL ACADEMY

UNITED STATES AND NICARAGUA

EFFORTS TOWARD PEACEFUL SETTLEMENT.—On the morning of January 27 Rear Admiral Latimer arrived at Corinto, the west coast seaport of Managua, the capital of Nicaragua, and proceeded at once to the capital. It was indicated that, together with Charles C. Eberhardt, the American Minister, he planned to confer with President Diaz, on the basis of a statement in his possession from the Liberal leader Sacasa, in an effort to secure a peaceful solution of the Nicaragua problem. It was expected that representatives of Sacasa would be called in, and it appeared possible that a settlement might be reached which would involve the elimination of both the rival leaders.

Prior to this development, both Diaz and Sacasa had made tentative offers, neither of which had proved satisfactory to the opposition. Diaz on January 15 proposed that he be continued as president until the end of his present term, December 28, 1928, with provision of government jobs and seats in Congress for Liberals, and that at the end of that time a free election should be held under supervision of the United States or other neutral authority. Sacasa, on the other hand, according to despatches of January 23, was willing to step aside at once in favor of a non-partisan executive, chosen through the mediation of the United States or other American nations, and approved by the neutral members of the present Nicaraguan Congress.

MILITARY ACTIVITIES.—At the close of January, hostilities between Liberal and Conservative forces were still going on, especially in the interior; and in northwestern Nicaragua the Liberals reported considerable success. Despatches from Admiral Latimer on January 10 stated that three additional neutral zones had been established on the eastern coast for the protection of American property and to prevent the entry of munitions for the revolutionary forces. One of these was at Pearl Lagoon, another sixty miles north, and a third at Rama, twenty-five miles up the Escondido River, where there are American mahogany interests. The American forces in Nicaraguan waters included fifteen units, with upwards of 5,000 sailors and marines. This concentration, it was remarked in the press, would serve a double purpose, in the event of serious difficulties with Mexico.

PRESIDENT DEFENDS NICARAGUA POLICY.—Early in January strong opposition was manifested in Congress and in the press against the policy of the United States in landing forces in Nicaragua and entering into Nicaraguan political broils. In reply to these criticisms President Coolidge on January 19 sent a message to Congress defending the government's recognition of Diaz and its efforts to end the state of anarchy in Nicaragua.

The message cited the clause in the Nicaraguan Constitution providing that, in the absence of the President and Vice-President, the Congress shall designate one of its members to complete the unexpired term. It pointed out that, on November 10, when the Congress elected Diaz, both President Solarzano (Conservative Republican elected in 1924) and Vice-President Sacasa (Liberal) were absent from the country, though Sacasa arrived to head his revolutionary forces at the end of that month.

In defense of the recognition of Diaz, the message recited at length the history of recent events in Nicaragua, including Chamorro's overthrow of Solarzano, the

subsequent Liberal uprising, the arrival of American naval vessels last August, and the armistice in October followed by the November election. Concerning the part played by Mexico, President Coolidge said:

> I have the most conclusive evidence that arms and munitions in large quantities have been on several occasions since August, 1926, shipped to the revolutionists in Nicaragua. Boats carrying these munitions have been fitted out in Mexican ports, and some of the munitions bear evidence of having belonged to the Mexican Government. It also appears that the ships were fitted out with the full knowledge of and, in some cases, with the encouragement of Mexican officials and were, in one instance at least, commanded by a Mexican Naval Reserve Officer.

After emphasizing the injury to American investments that would result from continued revolution, the President ended as follows:

> Manifestly, the relation of this Government to the Nicaraguan situation and its policy in the existing emergency are determined by the facts which I have described. The proprietary rights of the United States in the Nicaraguan Canal route, with the necessary implications growing out of it affecting the Panama Canal, together with the obligations flowing from the investments of all classes of our citizens in Nicaragua, place us in a position of peculiar responsibility.
>
> I am sure it is not the desire of the United States to intervene in the internal affairs of Nicaragua or of any other Central American republic. Nevertheless, it must be said that we have a very definite and special interest in the maintenance of order and good government in Nicaragua at the present time, and that the stability, prosperity and independence of all Central American countries can never be a matter of indifference to us. The United States cannot, therefore, fail to view with deep concern any serious threat to stability and constitutional government in Nicaragua tending toward anarchy and jeopardizing American interests, especially if such state of affairs is contributed to or brought about by outside influences or by any foreign Power. It has always been and remains the policy of the United States in such circumstances to take the steps that may be necessary for the preservation and protection of the lives, the property and the interests of its citizens and of this Government itself. In this respect I propose to follow the path of my predecessors.

In spite of the President's argument, Senator Borah, on January 13, again came out strongly against American intervention, declaring that Sacasa was the rightful claimant, that the marines should be withdrawn or kept in Nicaragua only to insure a fair election, and that the Monroe Doctrine was in no way involved.

SECRETARY KELLOGG ON BOLSHEVISM.—Before the Senate Foreign Affairs Committee, two days after the President's message, Secretary of State Kellogg revealed State Department evidence tending to show Mexican activity in Nicaragua, and communistic activity throughout Central America. The documents were concerned chiefly with efforts of the Communist Party in the United States to establish an "All-American Anti-Imperialistic League," spread propaganda in Latin America, and get in touch with agents in those states. These efforts were approved by the Red International, though probably, as a Russian official said, most of the red leaders had never even heard of Nicaragua. In general, Secretary Kellogg's efforts to "raise the bogie of Bolshevism" were not taken seriously, though there was some truth in his statement that:

> The Bolshevik leaders have had very definite ideas with respect to the rôle which Mexico and Latin America are to play in their general program of world revolution. They have set up as one of their fundamental tasks the destruction of what they term American imperialism as a necessary prerequisite to the successful development of the international revolutionary movement in the New World.
>
> The propagation of communist ideas and principles in the various countries of Latin America is considered secondary to the carrying on of propaganda against the aims and policies of the United States. Thus Latin America and Mexico are conceived as a base for activity against the United States.

UNITED STATES AND MEXICO

SENTIMENT FOR ARBITRATION.—The possibility of a rupture of relations with Mexico, combined with intervention in Nicaragua, aroused in the United States during January a wave of agitation in favor of arbitration. On January 8, President Calles of Mexico, talking to a group of American clergymen and social workers, committed himself to the extent that he would agree to arbitration of disputes with the United States, "if it were necessary to make such a sacrifice to avert more serious difficulties."

This statement received wide publicity. On January 25, the U. S. Senate approved unanimously a resolution introduced by Senator Robinson expressing the opinion that it would be sound policy to submit the Mexican controversy "to an arbitration tribunal, which shall apply the principles of international law . . . . the arbitration agreement to provide for protection of all American property rights pending the

final outcome of the arbitration." This of course was simply an expression of Senate opinion and had no binding effect on government policy.

Secretary Kellogg declared (January 18), when the resolution was brought up, that he had been "giving very serious consideration" to such a course; and the Mexican Foreign Office came out with a statement that it was ready to accept arbitration "in principle." On the other hand, President Coolidge (January 21) declared himself strongly against arbitration, and said he felt the American people would support this position if they understood clearly that the issue was simply "whether property legally owned by American citizens is to be confiscated."

THE SITUATION IN MEXICO.—Such sentiment for arbitration as was expressed in Mexico was doubtless prompted by fear of internal disturbances if relations with the United States were broken, and the embargo lifted on export of arms. Catholic uprisings were under way in several provinces. Bishop Diaz, secretary and leader of the Catholic party in Mexico, was arrested early in the month, and later reported to be under military guard near the Guatamalan frontier. Huerta, at Los Angeles, was said to have received offers from revolutionary leaders with headquarters at Chuhuahua, promising an initial army of 6,000 for a campaign against Calles.

Toward the end of January the Mexican government began cancellation of all permits to drill oil wells on which operations had not been started by December 31, last, this applying only to companies which had not complied with the new petroleum law. No complaints, however, were made to the American embassy, and there was some reassurance in a report on January 29 that the Federal District Court of Vera Cruz had handed down a decision restraining the enforcement of the oil law until its constitutionality had been passed on by the Supreme Court of Mexico.

UNITED STATES AND EUROPE

TURKISH TREATY REJECTED.—After discussions in executive session extending over two weeks, the U. S. Senate on January 18 rejected the Lausanne Treaty with Turkey by a vote of 50 to 34, the affirmative vote being six less than the required two-thirds majority. The treaty was opposed on the ground that it failed to provide for the cession of Turkish territory to Armenia as arranged after the war, failed to guarantee protection of Christians, and failed to hold Turkey to recognition of the American nationality of former Turkish citizens naturalized in the United States. Many church organizations opposed the treaty, but the religious and educational institutions most active in Turkey favored its ratification.

The present temporary commercial agreement affording us "most favored nation" treatment has been once extended and expires February 20. The American Commissioner at Angora, Admiral Bristol, entered into negotiations for its further extension.

FUND FOR ARMS PARLEY.—In a message to Congress on January 7, President Coolidge asked for an appropriation of $75,000 to cover further participation in the work of the Geneva Preparatory Commission for the Disarmament Conference. The Commission meets in plenary session in March, and further meetings will no doubt continue for several months, in preparation for the conference which, it is hoped, will be held next year.

FISTS ACROSS THE SEA.—In an article by this title in the February *Harper's*, Mr. Albert Jay Nock analyzes the hostility toward the United States now almost universally manifest in Europe, and the results towards which it is tending. He believes that since the war the great effort of our former Allies has been to shift their burden of American indebtedness from their own shoulders to Germany, and "secure their own economic position in such a way as to make it safe to tell their creditor to dig his pay out of Germany or whistle for it." And so far as financial independence is concerned, he thinks they are now very near success. France is the only country that would feel any awkwardness about snubbing a demand from us for payment. And he thinks that France, by loans negotiated in other countries—perhaps indirectly from American sources—may be able to finance her economic recovery without dependence on direct loans from this country.

Then how can we ultimately collect these debts? Mr. Nock goes so far as to suggest

that, feeling our potential—if far from actual—military strength, we might conceivably resort to strong measures. We might be led "before our diplomatic conversations were over, to ask France for all her colonial possessions, and Great Britain for the maritime provinces and British Columbia, or we might be obliged to make the Chinese market (as seems anyway inevitable) a second Morocco."

This may sound startling, if not preposterous. But he is on safer ground in pointing out that there is developing an "economic solidarity" of western Europe, including Germany, against the chief economic competitor, America. So long as we continue prosperous, this does not worry us. But when we see our foreign trade cut down in every market of the world, "as this combination will be able to cut it down, will not the pinch be hard enough to start some grumbling, possibly some thinking, and certainly some kind of governmental activity? What kind will it be? Under such conditions," asks Mr. Nock, "what has it invariably been?"

GREAT BRITAIN

LLOYD GEORGE AND THE LIBERAL PARTY.—At a meeting of the Administrative Committee of the Liberal Party, on January 19, it was finally decided to accept Mr. Lloyd George's offer of support from the £1,000,000 "secret" campaign fund built up during his premiership, and to prepare for a full-line fight in the next election. Although Mr. Lloyd George thus appears to have won control of the Liberal party machine, it is not unlikely that many followers of former Premier Asquith will refuse to support the party under its new leader.

THE "NEW BRITISH EMPIRE."—As Augur points out in the January *Fortnightly Review*, it is difficult to realize fully the changes recently effected in the organization of what was once called the British Empire. Long tacitly admitted, it is now officially recognized that the Parliament at Westminster cannot legislate beyond the United Kingdom or pass in any way on legislation in the dominions over-seas. The only bond of union is common allegiance to the King, and it should be noted that this raises the British Crown to an increased function and responsibility.

With the new status of the dominions, new diplomatic problems are certain to rise. There will be not only a "British Ambassador" at Washington, but also an envoy from the Irish Free State and Canada, and perhaps soon from Australia. But who will represent the parts of the realm which do not send envoys? And who will take precedence in negotiations concerning the former empire as a whole?

The difficulties over sharing military and naval burdens have long been obvious and have not been solved by the new arrangement. It is interesting to note, in this connection, that the sums which Australia intended to contribute to the Singapore Naval Base were withdrawn when operations were halted by the MacDonald Labor Government, and are now earmarked for the Australian navy.

FRANCE

FRENCH POPULATION.—According to the census report, at the close of 1926 the population of France is now about 40,800,000. Of these 2,500,000 are foreigners. One tenth of the population of Paris is foreign.

APPROVAL OF BRIAND POLICIES.—In a report to the Foreign Affairs Committee of the Chamber, on January 19, Foreign Minister Briand declared that the Poincaré cabinet were in complete agreement in support of his present policy toward Germany. In his pursuit of more friendly relations with Germany, and also in his dealing with Italy, M. Briand has received useful assistance from the Vatican, which exerts a powerful influence with the Catholic Center Party in Germany and with Italian Catholics. In this connection it is pointed out that an alignment of Soviet Russia, Nationalist Germany, and Fascist Italy, though it would make strange political bed fellows, is the chief danger threatening the combination of western powers envisaged in the Locarno compact and the chief aim of M. Briand's foreign policy.

FRENCH FINANCES.—From a statement of Premier Poincaré, on January 19, to the effect that the United States Government had no wish to hasten French action on the debt accord, it appears likely that the question of ratification will remain shelved for some time to come. This is partly because of hope for revision of terms, partly be-

cause of the unlikelihood that the accord can pass in the Chamber, and partly because of the feeling of increased freedom afforded by the rise and stabilization of the franc. Later in the month Premier Poincaré stated his intention to maintain the franc at its present value of about 25½ to the dollar for some time in the future. Its fixing at that ratio was accomplished by an offer of the Bank of France to either buy or sell francs in unlimited quantities at that figure. Shipments of gold from France to the United States at the close of January were for the purpose of purchasing American securities, which, it was said, could be used more conveniently than gold as a *masse de manoeuvre* in preventing fluctuations of the franc. For this purpose M. Poincaré has built up available credits to the amount of about $500,000,000.

ITALY

ITALY'S FINANCIAL PROGRESS.—The monthly treasury balance in Italy, on December 31, indicated that income from taxation and other sources during the last six months of the fiscal year had nearly doubled over the six months preceding.

FEARS OF ITALY IN THE BALKANS.—Reports from Belgrade in January declared that Italy's recent treaty with Albania was the outcome of the conference last autumn between Premier Mussolini and Foreign Minister Chamberlain of Great Britain, the latter country having decided to scrap her policy of upholding Albania and give Italy a free hand. Whether this report had any foundation or not, the fears of the Jugoslavs were further aroused by the publication at Rome, on January 18, of a manifesto of the so-called "Montenegro Committee of National Defense" demanding Jugoslav evacuation of Montenegro and its union with Herzegovina as an independent state, which presumably would be turned over to the Italian Crown Prince as a grandson of former King Nicholas of Montenegro. In this revival of the Montenegro question, on the heels of the Albanian Treaty, Jugoslav leaders saw clearly the designs of Italy.

GERMANY AND NORTHERN EUROPE

NATIONALISTS IN NEW CABINET.—The condition set by President von Hindenburg that the next German ministry must have a clear majority in the Reichstag was apparently fulfilled in the cabinet finally organized by former Chancellor Marx and announced January 28. This was based, not as before on a minority group of middle parties, but on a combination of middle parties and Nationalists, commanding an estimated vote of 270 against 222 for the opposition. The new cabinet contained four Nationalists; three Centrists, including the Chancellor; and three of the German and Bavarian People's parties, including Foreign Minister Stresemann. Dr. Otto Gessler retained his position as Minister of Defense in order to keep the army "on a democratic basis," although for staying in the cabinet he was ousted from the Democratic party. The Nationalists agreed to swallow the Stresemann foreign policies of Locarno and the League, in return for a voice in internal affairs. Their selection for one cabinet post, Herr Graef as Minister of Justice, was too reactionary even for President von Hindenburg, who forced his withdrawal because Graef had once insulted President Ebert by staying away from a court reception which custom required him to attend.

POLISH-LITHUANIAN RAPPROCHEMENT.—Since the establishment of a conservative government in Lithuania, there have been efforts toward a resumption of friendly relations between Poland and her old enemy. Economic conditions are forcing Lithuania to seek friendship with one or another of her frontier neighbors, and Poland appears the most promising, provided some kind of joint control can be established in the Vilna district, long disputed between the two countries.

RUSSO-JAPANESE ACCORD.—According to a despatch from Walter Duranty to the New York *Times*, January 23, there has been during the last few months a steady smoothing out of relations between Soviet Russia and Japan. The two reasons alleged for this are: (1) the remarkable success of the Cantonese under Soviet guidance, and (2) a growing belief that Russia's friendship in Siberia and Northern Manchuria will be more profitable to Japan than Chang Tso-lin's. A fisheries convention on the Siberian coast is up for discussion in March. If, further, Japan secures permission to extend her southern Manchurian Railway northward across the Chinese East-

tern to the Amur River, as she has long desired, then Russo-Japanese friendship may be accepted as a fact.

FAR EAST

ANTI-FOREIGN DEMONSTRATIONS.—At Hankow, 585 miles up the Yang-tse River and just across from Wuchang, the present headquarters of the Cantonese government, the British concession is valued at about $60,000,000. Following a great Chinese mass meeting there, on January 3, a mob of thousands of coolies charged the concession, attacking with clubs and stones the concession police and about forty sailors from a British warship in the river. The police and sailors maintained only a passive resistance, and at nightfall the mob was dispersed by Cantonese soldiers. The following day Admiral Cameron, Consul General Goffe, and the Chinese chief of police agreed that the naval detachment should be withdrawn, and the concession taken over by police under Chinese control. On the fourth British women and children were sent to Shanghai, and about sixty American women and children left on the sixth. The British consul remained in the city, but British banks and business houses were kept closed. The Japanese and French concessions were not attacked, although it was made clear that their ultimate surrender to Chinese authority was expected. At the time of the attack there were about 1,300 Americans in Hankow and Wuchang. Six U. S. naval vessels were on the scene on January 5, and others were sent further up the river.

At Kiu Kiang, 135 miles below Hankow, there were similar demonstrations which led to the landing of British forces for protection of the concession. In the city of Foochow, in Fukien province, a Chinese mob, on January 7, looted the Y.M.C.A. and two mission churches, and attacked the Spanish Dominican orphanage. Some Americans as well as British suffered personal violence. Anti foreign agitation swept through many provinces and threatened foreigners in the interior, but no loss of life was reported.

BRITISH OFFERS TO CHINA.—In a speech on January 29, Sir Austen Chamberlain, British Secretary of Foreign Affairs, gave a fairly definite outline of British offers to Chinese leaders. He declared that there offers were most generous and far-reaching, including recognition of modern Chinese law courts and codes for trial of cases brought by British complainants; admission of Chinese tariff autonomy, provided tariffs were not discriminatory against British subjects or goods; and control of British concessions by arrangements which would give a share in their adminstration to both British and Chinese. He pointed out difficulties arising from the anti-British attitude and Soviet leanings of the Cantonese Government, and made it clear that any agreements reached must apply to Northern as well as Southern China.

Counsellor O'Malley of the British legation in China arrived at Hankow, on January 10, and presented the above proposals in subsequent conferences with Foreign Minister Eugene Chen of the Cantonese Government and General Chiang Kai-shek, commander-in-chief of the Cantonese army. These conferences were continuing at the end of the month. As a result of understandings reached, British banks and business houses at Hankow reopened on January 24.

In the meantime the British Government began the despatch of naval vessels and troops to the Far East, providing for a concentration of upwards of 20,000 men at Shanghai, to be known as the "Shanghai Defense Force," under command of General John Duncan, who sailed for Shanghai on January 26.

UNITED STATES POLICY.—In a statement on January 25, President Coolidge made it clear that the policy of the United States in the present Chinese crisis was to protect American lives and property, but if possible to avoid joining Great Britain or other foreign powers in preparations for actual hostilities against China. The President pointed out that the fact that the United States has no concessions in China differentiates our policy from that of Great Britain.

Information provided by the State Department in January showed that there are about 12,000 Americans in China, of whom perhaps 6,000 are missionaries and their families. There are about 4,000 Americans in Shanghai and this number is increasing owing to the withdrawal of missionaries and others from the interior. There are,

roughly, 2,000 Americans at Tientsin, 1,300 at Hankow, 1,000 at Nanking, 800 at Canton, and 500 at Hongkong. American trade represents 20% of China's imports and 14% of her exports.

Mr. J. V. MacMurray, American Minister to China, who had been recalled to Washington for conference and had traveled as far as Korea, was on January 21 ordered back to Peking. Admiral C. S. Williams, commander of the U. S. Asiatic fleet, arrived at Shanghai, on January 13, and was at the time senior officer among the commanders of the fifty or sixty naval units there assembled. The United States had at that time about fifty-five naval vessels in the Far East with a total of more than 8,000 sailors and marines. On January 29, it was announced that the cruisers *Richmond, Cincinatti,* and *Marblehead* had been ordered to Hawaii, under Rear Admiral John R. Y. Blakely, as a reinforcement if needed.

Carrying out the well recognized United States policy of treating China on a basis of full equality, Secretary Kellogg in the latter part of January sent a message, in response to a request from Foreign Minister Koo of Peking, offering to enter into negotiations for new treaty agreements at any time. Apparently this offer was extended to both the Peking and Cantonese Governments. Mr. Kellogg's offer was in line also with a resolution introduced by Congressman Porter of the House Foreign Affairs Committee, favorably reported to the House on January 28, which requested the President "forthwith to enter into negotiations with duly accredited agents of the republic of China" for "treaty relations upon an equitable and reciprocal basis."

ATTITUDE OF JAPAN.—While awaiting the action of Great Britain and the United States, it was evident in January that the Japanese Government foresaw the necessity for *de facto* recognition of the Cantonese Government and an extensive modification of present treaty agreements. Japanese trade in the Yang-tse valley has suffered severely as a result of recent disturbances, and Japan will not lag behind other powers in adopting a conciliatory policy toward the Nationalist elements now dominant in China.

JAPANESE MILITARY EXPENDITURES.—The new Japanese budget, the largest in Japanese history, provides for an expenditure of 1,730,000,000 yen. Of this 225,000,000 goes to the navy and 212,000,000 to the army—representing 27 per cent for military purposes, as compared with 50 per cent in the years just after the war. The navy estimates were cut down about 10 per cent.

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BATTLESHIPS IN ACTION

By H. W. Wilson. 2 volumes. Little, Brown & Co., Boston, $10.

REVIEWED BY REAR ADMIRAL W. V. PRATT, U. S. NAVY

VOLUME I

INTRODUCTION. The review of these two exhaustive works of naval action is a somewhat difficult matter to undertake because the method of treatment would seem to be different from that required in a review of most other works. The period with which the author deals in these two volumes extends from approximately 1853 through to and including the naval actions of the World War. Volume I deals with those incidents up to the World War; Volume II deals exclusively with the World War of 1914-1918. Perhaps it should be said now that the name *Battleships in Action* is somewhat misleading to the technical naval man. By battleships our naval men mean heaviest ships of the line as represented by ironclads, older battleships, dreadnaughts and superdreadnaughts. What the author means is all classes of warships and therefore the title from our point of view would be more appropriate if it were "Warships in Action" instead of *Battleships in Action.* This comment, however, is immaterial so long as it is understood that the contents of these two books deal with naval actions of all sorts and descriptions. At the back of each book are to be found excellent tables and a good bibliography which will serve the reader who chooses to go into more intimate studies of the facts dealt with in the present volumes. The average book is usually a continuous story from start to finish. The reader is thereby enabled to follow the thread of the story. Not so with Volume I, for the author deals with events from the point of view of time and therefore in the same chapter one may find facts connected with naval affairs which happened in different parts of the world and involve different nations. The author has amassed a great amount of material and it is principally on this account these books are valuable and should be in the library of every officer who attempts to make a study of naval history. If for no other reason, they will refresh his memory with many incidents in the history of world's navies which might be forgotten. It is further to be noted that sometimes these minor actions contain lessons which are of value to the student. To attempt to get an idea of the contents of the book, the reviewer feels that he must go into the detail matter somewhat more at length than he would in the average book and for this reason he has chosen to give a brief synopsis of the chapters as they occur.

CHAPTER I. The points which the author makes in this chapter are as follows: In speaking of the fight between the *Merrimac* and *Monitor,* the author correctly notes that the great value to the Federal forces was not in the battle itself, which was indecisive, but that the presence of the *Monitor* did prevent the break-up of the military operations in and around Hampton Roads by keeping intact the line of supply, which was vital to the success of McClellan's campaign.

His interpretation of Farragut's action at New Orleans in running the forts and in the capture of the city is correct. In this

respect the estimate of the situation which Farragut made at the time was one which modern naval leaders could take to heart. Farragut well understood that the fall of New Orleans had an important international aspect at this particular period in the Civil War. He further realized that by applying his forces above the forts rather than directly at the forts he would cut the line of communications to the forts and would cause them to fall eventually, which was what happened. Further, Farragut realized that by so doing he would still retain his own line of communications intact to the sea. This was a case where forts fell without any direct military assistance, but the situation was a peculiar one and had to be treated on its own merits. On the other hand, in the operations on the Mississippi and Tennessee Rivers to the north this was not the case. There the operations against the Confederacy took the form of joint operations in which Grant had a distinct appreciation of the value of sea power as an adjunct to military operations on land. As a result of these combined efforts, the river above Vicksburg was cleared and finally Vicksburg itself fell. In the action against Vicksburg, it should be noted that Farragut adopted entirely different tactics from those which he used at New Orleans, in that he assisted the Army by direct attacks made against the forts which were supporting the Confederate position at Vicksburg. As a result, to quote the author, "The fall of Vicksburg, coinciding with the Northern victory at Gettysburg, sealed the fate of the Confederates, though they struggled on for nearly two years. . . . . With the loss of Vicksburg and Port Hudson it became impossible for them to draw food products from the rich country west of the Mississippi, and a shortage of supplies began in the Confederacy."

CHAPTER II. As the author says, the capture of the Mississippi line by the North was a step toward completing the blockade of the South. The blockade which the Union forces established was the vastest naval operation attempted up to the date of the Civil War. This tremendous operation naturally caused a great expansion in the Union naval forces, so much so that in 1865 the Northern naval forces amounted to 671 ships, of which sixty-two were armored. It was essential that this blockade should be attempted since the dependence of the South upon the outside world for many military necessities was apparent, and further the exportation of cotton from the South to the outside world was necessary in order to obtain funds for the Confederacy. It was also appreciated that in order for the naval craft to operate efficiently, numerous strategic points in the South would have to be seized. It therefore followed that many of the joint operations undertaken for the seizure of these advanced points, although to the casual student appearing as extraneous efforts, were really part of the joint plan of blockade. This is a lesson which should be taken to heart by future strategists. There was nothing new in this as the same strategy was used by the Athenians in the Peloponnesian Wars. It might be noted here that Port Royal was one of the rare cases in which naval ships vanquished forts without direct military assistance. It is interesting also to note that while we made protest during the World War against British ships lying off our principal Atlantic ports, during the Civil War some of our ships chased blockade runners and even fired at them within the territorial waters of the British Bahamas.

During the Civil War several incidents happened, notably those of the *Peterhoff* and *Springbok*, which served to establish a new principle in international law, that of ultimate destination of contraband cargo. The *Trent* affair in which Mason and Slidell, Confederate representatives going abroad, were taken off a British ship on the high seas, while the ship was not sent in for condemnation, became a point at issue which was afterwards settled by the principle laid down under the Declaration of London in 1909 in which the capture of a ship performing such unneutral service was declared valid. This practice was afterwards upheld and applied in the World War of 1914-1918. During the Civil War, the fallacy that ships could attack and seize forts without the aid of military force was fairly well established, but it should be noted that this lesson seemed to have been lost sight of in the first attempt which was made to seize the forts at the entrance of the Dardanelles. There is a very interesting account of Farragut's action at Mobile Bay and the principal lesson to be learned

there seems to be that determination on the part of the leader to persist even in spite of odds, is in itself a great asset and frequently leads to success. Farragut's action here was in great contrast to that of Persano at the Battle of Lissa. During the Civil War the number of prizes brought in by Northern vessels amounted to 1,149 of which 210 were steamers. In addition 355 ships were burned or sunk of which 85 were steamers. In speaking of the effect of the blockade, Professor J. C. Schwab says, "the relentless and almost uniformly successful operations of the Navy have been minimized by the, at times, more brilliant achievements of the United States Army." He ascribes to the Navy "the larger share in undermining the power of resistance of the South."

Like all states that cannot maintain control of the sea, the South early appreciated the importance of attempting commerce destroying operations. These extraneous operations were to have the double effect of diverting the attention of the Northern Navy and further inflicting very considerable damage upon the unprotected Northern merchant ships plying across the ocean. Several raiders, notably the *Sumter, Florida, Georgia, Alabama* and *Shenandoah,* were fitted out. Of these the *Alabama* did the most damage and achieved the greatest reputation. When the *Kearsage* defeated the *Alabama,* very much the same effect was produced as when von Spee's squadron was destroyed off the Falklands by Sturdee. The commerce destroying campaign of the Confederacy netted them 261 ships lost to the Northern side, of which 259 were sailing ships. The losses due to these operations amounted to £3,400,000. In the meantime the deep sea tonnage of the merchant marine of the United States shrank from 2,496,000 tons to 1,387,000 tons but this was not due to the raiding operations only. It helped to accentuate the decay that was already in process in 1861. The withdrawal of the United States subsidies to the American merchant marine and the rapid opening of the west which attracted both capital and men, as well as the fact that about this period occurred the transition from sail to steam, probably had more effect on the decline of the American merchant marine than the commerce destroying operations of the Confederacy. The United States Navy Department made no great attempt to protect its commerce by despatching ships from the blockade to hunt down commerce raiders and for this it has been criticised. The author is inclined to accept this criticism as just but the reviewer is inclined to differ from this point of view. It is felt that to stick to the main job, which was that of blockade, and not to allow themselves to be diverted from it was really the part of wisdom. Extraneous efforts are usually expensive and frequently interfere with the main purpose of the war. The author contrasts the British attitude toward neutrality in refusing to let two ironclads ordered at Laird's, go to the South, to that of the French government under Napoleon III, which permitted orders for four steam cruisers and two armored ships to be placed there by the Confederacy. These ships were, however, ordered to be sold after pressure by the United States had been put upon the French government in 1864. At this time the end of the Confederacy was practically in sight.

The principal lessons to be learned from the Civil War are, the influence sea-power exerted at every juncture on land operations; the difficulty of improvising a navy, and the need for a well organized planning and operating staff. Insofar as the United States was concerned, these same lessons had still to be learned at the time of the Great War.

CHAPTER III. In 1864, war broke out between Prussia and Austria on one side and Denmark on the other. Naval action played a minor rôle.

In 1866, war broke out between Italy and Prussia on one side and Austria on the other. The operations which follow illustrate the influence of a strong resolute character in naval war. Tegetthoff, the Austrian commander, though not a Nelson, was such a character, while Persano, the Italian commander-in-chief, was a man of indecision. The odds in favor of the Italians in material force were approximately 1.87 to 1. But even these were not sufficient for the Italians to win. Persano was told to gain control of the Adriatic but he made no attempt to do it. Finally it was decided to attack and to seize the Island of Lissa, which Persano attempted to do with the fleet accompanied by some military force. Persano had already refused an engage-

ment, but why he did not make a better disposition of his force when he heard that Tegetthoff was coming to attack him is not understood. The author gives a good account of the Battle of Lissa. Tegetthoff issued the same order which Nelson gave that "the order of sailing is to be the order of battle" and he advanced upon the head of Persano's column in a series of three V-shaped wedges. Although at the opening of the battle Tegetthoff was much inferior to Persano in material strength, yet he seemed to have an insight into the character of the man against whom he was pitted. He therefore advanced boldly. The result of the battle, while not a decisive victory, was in favor of the Austrian forces which was much to their credit. Tegetthoff did not follow up his advantage and Persano withdrew. But Persano retired to Ancona leaving Tegetthoff the victor. Persano, as a senator, was tried by the Italian Senate and was dismissed from the naval service. As a result of this battle, the tactics of the flying wedge, at a time when ships had to engage in close action in order that their gunfire should be effective, received a great impetus and for a while this tactical formation was considered to have great merit. The longer gun range at which we fight now has, of course, rendered these tactics rather out of date, unless action should become very close. In the tactics adopted by Tegetthoff one can see the influence of Nelson's doctrine to endeavor to place a superior force against a portion of the enemy's line. The principle holds good today as it did at an earlier period, though the methods may change.

In 1864, Spain engaged in war with Peru and in 1865 engaged in hostilities with Chile. These were minor naval affairs.

In 1864, Lopez, dictator of Paraguay, attacked Brazil. Argentine and Uruguay joined on the side of Brazil. This was a minor naval affair, but it resulted in the end of Lopez' career. The river flotillas of the Brazilians played a decisive part in turning the flanks of Lopez' army.

Chapter IV. In 1870-71 the Franco-German war was waged. France was considerably superior to Germany on the sea but could not make any direct assault upon the coastline of Germany which was protected by mines and tolerable defenses. Although attempted, no alliance with Denmark could be secured and no French attack directed through that area. Complete control of the North Sea must be assured before attempting operations in the Baltic. The result was there was no serious fighting at sea and the war which was fairly short took on an almost complete military aspect. This undoubtedly influenced the German strategy in the World War. Had the war of 1870-71 lasted longer, the part which sea power played might have been a more prominent one.

In 1877 Russia declared war upon Turkey. Russia had no base in the Mediterranean and control of the sea in those waters was assured to Turkey. In the Black Sea, Russia was forbidden to maintain a navy. The Turkish Navy was badly administered though far superior in strength to any force Russia could bring against it. The influence of sea power, although no notable battles between larger ships were fought, was marked. If Russia had been able to command the Black Sea, she could have threatened the heart of Turkey, which was Constantinople, and could have attacked any point of the Turkish coastline. The Turkish Navy did not act with any particular degree of energy, failing to blockade the Russian ports of Odessa and Sevastopol and standing much in fear of torpedoes and mines which the Russian forces used to considerable effect.

In South America there were various disturbances involving naval actions during the period 1877-1881. In 1877 there was an irregular action between the unarmored cruiser *Shah*, a British ship, and the armored Peruvian turret-ship *Huascar*, which had declared war against its own government.

In 1879, Peru and Bolivia went to war against Chile. Chile had two modern ships and was somewhat superior in naval force to Peru. In order to wage an effective compaign, command of the sea was essential. Although acting with energy, Chile at first failed to realize that command of the sea was essential in order that she might place an effective military force to strike at the heart of the Peruvian government, so she undertook blockade operations in the beginning. During the blockade, the *Huascar*, Peruvian ship, sank the *Esmeralda* at Iquique. Later, off Antofagasta, the *Huascar* was defeated by the *Cochrane* and the

Blanco Encalada. This ensured definite command of the sea to Chile which landed forces and attacked Callao. Lima soon surrendered. The mastery of the sea practically assured Chile of the victory which followed.

CHAPTER V. In 1882 we see the British fleet off Alexandria to protect foreigners. The forts there were bombarded. Beresford handled the *Condor* very gallantly. The Egyptians withdrew, although no great material damage had been done to the land fortifications.

In 1884, the French took action against China due to the operations of Chinese irregulars in Tonkin. The French fleet bombarded Kelung in Formosa and later attacked the Chinese ships at Foochow and the forts in the River Min.

In 1891, the bulk of the Chilean fleet declared war against Balmaceda and joined the Liberal or Congressionalist Party. Torpedoes played a prominent part in the naval actions ensuing. The flotilla torpedoed the *Blanco Encalada* and sank her at Caldera. During this trouble the "Itata" affair occurred in which the United States was involved.

Civil war in Brazil followed closely on civil war in Chile. Rear Admiral deMello seized the Brazilian ships and the naval arsenal at Nictheroy with the idea of deposing the President, Marshal Peixoto. Admiral Benham warned DeGama, in charge of DeMello's fleet, that if American ships were damaged he would engage. The main lesson of these desultory actions was the impotence of naval forces without adequate bases.

CHAPTER VI. In 1894 war broke out between China and Japan without formal declaration. The trouble arose over Korea. Control of the sea was essential to Japan in order to operate with military forces on the mainland. On paper the Japanese Navy was weaker but in morale and efficiency it was much superior. Admiral Ting was a Chinese officer of cavalry, though he had one or two competent foreign advisers. The Japanese Navy was British organized and trained. There was a minor action off Asan and later the *Naniwa* sank the *Kowshing*, producing international complications with Britain. At the principal naval battle of the Yalu, each side had ten ships in line. Ting elected to fight with ships in line abreast because a too hasty study of the Battle of Lissa had led to the belief that line abreast was superior to line ahead. Admiral Ito in line ahead passed around the wings of Ting's fleet and did great damage with his quicker firing guns. The author gives a good detailed account of the battle. The result was a victory for the Japanese, but not the complete annihilation of the Chinese forces. The author sums up the casualties and the fire effect values. Later on, Port Arthur was captured and Wei-hai-wei taken. This war was important as it illustrated the tactical weakness of the end-on attack and line abreast for battle. It further showed the risk to fire of ships encumbered with much wood. It was the first time quick firing artillery and torpedo boats were systematically employed. One result of the war was the great enhancement of Japan's reputation in the Far East.

In 1897, war began between Greece and Turkey. The Greek Navy was able to control the sea. The Turkish Navy remained in port; the Greeks used theirs ineffectually.

In the South African war of 1899-1902, the British Navy was not directly engaged except insofar as it supplied naval brigades and long range guns for service on land with the British forces.

In June, 1900, the Boxer trouble broke out in China. The Taku forts at the mouth of the Peiho River were bombarded by the Allied fleet and captured by assault of the mixed naval brigade.

CHAPTER VII. In 1898 the *Maine* blew up in Havana Harbor and war with Spain followed. A geographic description of the blowing up of the *Maine* is given. The Spanish government had made no real preparations to meet a naval attack, though it was clear that Cuba could only be retained if the Spanish Navy controlled communications by sea. This statement is also true of the situation in the Philippines. The author gives a good comparison of the two naval forces. He also quotes Napoleon's ruling on the responsibilty of an admiral or general, but does not state that Napoleon himself did not fully appreciate the balance necessary to maintain between naval and military forces. Cervera was convinced before action that he went to defeat. An excellent account of the voyage of Cervera ending in Santiago, Cuba, is given. A good account of the events leading up to Santiago is also given. Schley's lack of energy is spoken of.

An account of the sinking of the *Merrimac* is given. The chapter ends just before the Battle of Santiago. Without going into too much detail, the author manages to give the reader all details essential to an understanding of the causes of the war, policies adopted on each side, a measure of the naval forces involved, an insight into the character of the leaders, and a fairly complete outline of the operations.

CHAPTER VIII. In this chapter is given an excellent account of the Battle of Santiago. The action is well described: the casualties given and the hits reported, the behavior of the personnel on each side is touched upon, as is the reception of Cervera as he came aboard the *Iowa*. The *Vizcaya* had the largest number of casualties, but in proportion to crews, the Spanish destroyers suffered most. The Spanish ships were greatly outnumbered, at least in the proportion of 18.5 to 6 in the matter of weight of fire per broadside. The author mentions the Sampson-Schley controversy. He further makes this pertinent statement in regard to Santiago:

The errors and neglect of politicians are almost invariably expiated by the fighting man—often by the very man who has striven to rouse the politicians to the danger and to secure timely measures against it. The atonement for the neglect of the Spanish Navy by successive Spanish governments was made by the Spanish officers and men in the hecatomb of Santiago. The atonement for the failure to strengthen and prepare the British Army in the years before the Great War was made by the officers and men of that army in the months of agony at Ypres, when also the innocent paid with their blood for the neglect of the guilty.[1]

The fall of Santiago followed quickly upon the heels of naval action. No further fighting of importance followed in the West Indies.

In the Far East events were happening, leading up to the Battle of Manila. Commodore Dewey had command of our naval forces in Asiatic waters. The author gives a good account of the Battle of Manila which was a complete victory for the Americans. The United States naval forces greatly outmatched the Spaniards in fire effect, though the latter had the advantage of mine fields which, however, did not function. The author gives Dewey much credit, which is deserved. The events following the battle are described. The incident of Diedrichs and Chichester is spoken of. The reserve Spanish squadron sailed from Cadiz but was recalled. The author's main conclusions drawn from this war are: Weak squadrons in remote colonies are always a source of danger; that sea-going qualities are of the first importance in warships as was shown by the constant difficulties experienced in utilizing the United States monitors; that in action woodwork in ships is a great danger; that rapid and accurate fire upon the enemy gives good protection; and that, finally, naval war is influenced to an extraordinary extent by the problem of obtaining fuel.

CHAPTER IX. This chapter deals with the events leading up to the Russo-Japanese War. The war, which began in February, 1904, was preceded by a long period of growing diplomatic tension. In 1902, the Japanese government had secured a defensive alliance with the British empire. The Russian occupation of Manchuria had alarmed Japan. Port Arthur was in Russian hands and the base at Vladivostok was fairly well equipped. It was a vital aim of Japanese policy to prevent Russian dominance in Korea. Sea-power must obviously play a determining part in the war to follow. Japan thoroughly understood the correct strategy of the campaign and the proper balance between the naval and fighting forces together with the rôle each had to play. In Russia there was a dissipation of effort instead of a resolute concentration on the vital object. All available Russian ships were not concentrated in the Far East. The Russian war plans were unsound. The destruction of the Japanese fleet was hardly considered. Rear Admiral Vitgeft, Chief of the Russian Naval Staff in the Far East, stated just before war that "our fleet cannot be beaten by the Japanese fleet either in the Gulf of Korea or in the Yellow Sea," and that therefore a landing by the Japanese in those areas was "absolutely impossible." A statement is given of the composition of the Japanese fleet and an account of Togo. The organization of the Russian fleet is given. The author discusses the value of Port Arthur versus Vladivostok as a naval base for operations and decides against Port Arthur. The Rus-

[1] The italics are the reviewer's.

sians before war had made no attempt to put their best naval men in the destined area of war. Stark was an amiable, inert, routine dominated officer.

CHAPTER X. This chapter deals with the opening of hostilities. The Japanese landed military forces at Chemulpo on February 8 and on February 9 the *Korietz* and *Variag* were attacked by the *Asama* and *Chiyoda*. At 12:20 A.M. on February 9, the Japanese attacked the Russian ships at Port Arthur. The Japanese scored three torpedo hits and received no damage. The author gives a very interesting account of the battle of February 9 off Port Arthur between the two fleets. His conclusions seem impartial and correct. The various naval encounters around Port Arthur up to and following the taking over of the Russian fleet by Admiral Makaroff are described. Makaroff appears to have been a disciple of offensive action, differing in policy from the previous commander. The chapter closes with a description of the nightly sorties of destroyers which Makaroff ordered.

CHAPTER XI. Makaroff continues his sorties and the Japanese attempt to bottle up the Russian fleet in Port Arthur. In one of the sorties, while returning to port, the *Petropaviosk* is mined and sunk. Makaroff goes down, an irreparable loss to the Russian naval forces. If he had lived, Togo's task would have been much harder. On May 5, the Japanese troops land and begin operations looking to the capture of Port Arthur, after several blocking attempts at the entrance of Port Arthur had failed. After Makaroff's death, a defensive naval policy is again adopted. No destroyer attack is made against the transports landing troops. The Russians lay mines outside of territorial waters. On May 15, the *Hatuse* is blown up and the *Yashima* damaged by mines. Vitgeft took no offensive action and was finally ordered out on June 23. Vitgeft sees the Japanese warships waiting for him and returns to port.

CHAPTER XII. On August 6, the Russian fleet again puts to sea. A good description of the battle of August 6, with diagrams, is given. A chance hit kills Vitgeft and jams the helm of the *Tsarevitch*, throwing the Russian fleet into confusion. This turns the tide in favor of the Japanese, and the Russian fleet returns to port. The author makes several comments on the battle which seem correct. An account is given of the operations of the Vladivostok squadron consisting of three armored and one protected cruiser which acts with considerable more energy than the Port Arthur force. Kamimura is hard put to it to protect the line of communications from Japan to Korea. On August 14, Kamimura falls in with the Russians and a battle ensues. The author gives a good account of the engagement and makes some pertinent comments. The chapter closes with some comments on the action of the Japanese commanders and the policies they pursued in the actions fought.

CHAPTER XIII. This chapter begins with the story of the end of the Port Arthur fleet. The net result of the Port Arthur campaign from the naval point of view is discussed. The Japanese hasten to recondition the captured Russian ships. The plan of operations against the Baltic fleet is decided upon. The first portion of the Baltic fleet under Rojestvensky leaves Libau on October 15, 1904. The author discusses the strategy of sending the Baltic fleet out at this time. Undoubtedly this fleet was sent too late to do any good. In January, 1905, the second squadron of Russian ships under Nebogatoff is sent out. A short account of the trip out is given. Four courses are open to Rojestvensky when he leaves Cochin-China which the author discusses. Rojestvensky expects to fight on May 26. Rojestvensky's battle orders, on the ground that they prepared for defeat rather than for victory, are open to criticism. Preliminaries up to the Battle of Tsushima are discussed.

CHAPTER XIV. The chapter opens with the preliminary contacts leading to Tsushima. The *Shinano Maru* locates the enemy in square 203. Togo telegraphs Tokio: "I have just received the news that the enemy's fleet has been sighted. . . . . Our fleet will forthwith proceed to sea to attack the enemy and destroy him." A comparison of strength of the two opposing forces is given. A plate of the Russian cruising formation is given. Rojestvensky goes into battle in a bad formation. A full description of the battle which follows is given with plates to illustrate the movements of the ships involved. A table of casualties is given. Night attacks follow the battle. A plate of the Japanese pursuit after Tsushima is given. The losses due to the en-

gagement are summed up. The chapter ends with a discussion of the battle. On August 9, peace negotiations are opened at Portsmouth, New Hampshire.

CHAPTER XV. On September 28, 1911, Italy sends an ultimatum to Turkey. Italy has a comparatively strong navy, the composition of which is given. The Turkish Navy at the outbreak of war included only four effective vessels of any size. The aim of the Italians was not to shatter Turkish power but only to secure Tripoli. The Italian operations against Tripoli are described. The action at Beirut is given. The author describes the bombardment of Tripoli, giving a plate showing the dispositions. A demonstration is made off the Dardanelles. Operations cease September 18-19, 1912. Turkey loses Tripoli and the Ægean Islands. Several notable lessons were learned in this war which might have been useful in the Great War.

On October 17, 1912, Turkey is again at war with the Balkan League, consisting of Bulgaria, Greece, Serbia, and Montenegro. The Turkish Navy should have been superior to the naval forces of the League, only one of which, Greece, had a fleet and that a small one. The strategy of the Greek Navy was good. Its chief task was to seal the Dardanelles and deal with the Turkish squadron. The Greeks seized Lemnos October 20 and in a few days took other islands, providing themselves with advanced bases. An account of the Turkish fleet in the Sea of Marmora is given. Actions off the Dardanelles are described. The last event of the war was the taking of Samos on March 14, 1913. Peace was concluded May 30 but on June 30 a second war breaks out between Bulgaria on the one hand and Greece and Serbia on the other. There are no naval operations in this war.

CHAPTER XVI. This chapter is devoted to battleship disasters. The loss of the *Captain* is told. The *Vanguard* is lost. The *Grosser Kurfurst* is rammed and sinks. Tyron's maneuvers and the loss of the *Victoria* are described. The *Mikasa* is blown up. An explosion takes place on the *Aquidaban*. An explosion takes place on the *Iena*, which ship is destroyed. A discussion of "B" powder is given. There is a fire in the magazines of the *Liberté*. A list of the explosions happening during the World War is given.

FINAL. This attempted review is detailed and not general. It was felt necessary to deal with the book in this way in order to give the prospective reader some idea of the vast amount of matter, both written and reference, contained in this volume. It is an important reference book to have on the shelves of one's library of naval subjects.

THE DARDANELLES—A Condensed Study. By Captain W. D. Puleston U. S. Navy. U. S. Naval Institute, Annapolis. Price $2.00.

REVIEWED BY MAJOR GENERAL W. J. SNOW, U.S.A. CHIEF OF FIELD ARTILLERY, IN FIELD ARTILLERY JOURNAL, NOV.-DEC. 1926

This book is what its title indicates—A condensed study of the Dardanelles Expedition. The reasons why the Dardanelles Expedition was undertaken are so complex and the operations themselves are so intricate, involving simultaneous operations at a number of points, that the student has been confronted by the necessity for a considerable amount of reading and study in order to obtain a grasp of this expedition. Captain Puleston has undertaken to condense the story of this expedition and focus the attention of the reader upon only the most salient features of the campaign.

This expedition furnishes the best, if not the only recent, historical example of the forced landing of a considerable force upon hostile shore. For this reason, the operations have a peculiar value to the military student, and are deserving of more attention than they have generally received. We have not in our service any well thought-out detailed plan, involving the coöperation of the Army and Navy, which would be essential to the success of a forced landing. Such coöperation can not be secured over-night. A carefully prepared plan and the education of the personnel of both services is essential to success. Captain Puleston has realized the importance of this fact, and has endeavored to arouse the interest of American officers by the preparation of his study. It is highly desirable that this book be read by every officer of the Army and Navy.

The Dardanelles Expedition is not classed as a successful operation. The reasons for its failure are many. Captain Puleston's

text is so arranged as to focus the attention of the reader upon some of the reasons for the failure of the operation. Field artillerymen will readily draw three inferences from the text. First, unobserved artillery fire is practically useless. Second, field artillery methods of conduct of fire, used by the field batteries in constantly changing their positions, are admirably adapted to the attack of moving targets on water. Third, the support of the initial landing by naval artillery fire is essential, and this support, as quoted below, is effective only as the methods of adjustment and conduct of fire conform to the general practice of the field artillery.

It is particularly noticeable that in the later operations in the Dardanelles, after the Navy had adopted what approximated field artillery methods of observation and conduct of their fire, the infantry found it possible to capture a trench with very little loss which up to that time had proved invincible. General Hamilton in a letter to the author of the present volume, said: "As a naval officer, you should not dismiss so cursorily this point of the increased efficiency of the ship's artillery. Until quite the end of the expedition, the whole systems of gunnery, signalling, etc., were so entirely different that there was actually no coördination. Just at the very end this was at last successfully established by a brilliant artillery officer in conjunction with the naval people and the results were astonishing. The Turkish trenches, which were taken with little loss after a ship's bombardment(which would have been entirely inefficacious previously) were trenches which time after time we had assaulted without making any impression upon them."

The book is illustrated with sixty-eight plates, which make the highly condensed text, already readable, easy of comprehension. Several of these plates, by graphically comparing distances with those already familiar to the American reader, materially assist in a ready understanding of the many intricate problems with which the British were confronted.

It is to be hoped that the excellent work which Captain Puleston has done in presenting this important operation in such easy assimilable form will give rise to increased thought and study by our services of joint Army and Navy action in forced landings.

EXTERIOR BALLISTICS—1926.

By Lieut. E. E. Herrmann, U. S. Navy; U. S. Naval Institute, $6.

This book, intended primarily as a text for midshipmen, is largely a revision of the *Groundwork of Practical Naval Gunnery or Exterior Ballistics—1915*. The need of a new book arose from the general adoption of the new methods in exterior ballistics, which were introduced during the World War to handle the more stringent requirements of longer ranges, anti-aircraft fire, etc. It was also desired "to take advantage of instructional experience acquired" to clarify points which have proved difficult of comprehension by the students.

The greater part of the work of preparing the new volume for publication fell to the lot of Lieutenant Herrmann, who in view of the fact that he brought to the undertaking no higher qualifications than an extensive practical experience in gunnery and a year as an instructor in the Department of Ordnance and Gunnery, has acquitted himself of the arduous task quite commendably. However, the result clearly shows that it is to be regretted that circumstances were such that none of the nine recent postgraduates in ballistics, then potentially available, was made actually so by the Department, for collaboration.

Some excellent new features have been introduced. For example, each chapter has been summarized, and those portions of the text for which the student is not to be held responsible have been plainly indicated by printing in smaller type. The purpose already mentioned, of making more comprehensible, passages previously obscure, has undoubtedly been accomplished in many places, and there has been a laudable effort to treat appropriately the new developments.

On the other hand, there are many inelegancies in the treatment of various topics, both mathematically and textually. An enjoinder to brevity prevents the setting forth of numerous examples; so but two will be cited. In deriving the differential equations of the trajectory, an obscure method involving the radius of curvature is followed, instead of the intuitive resolution into rectangular components, based explicitly on Newton's Laws. In dealing with very small angles (Appendix B) trigonometric

functions are retained, although it would be much simpler, and perhaps slightly more accurate, to replace the sine or tangent by the angle itself.

The major criticisms, however, relate to the general composition of the book and to the choice of part of the new material. Chapters 1 to 11, 15, 16, and Appendix A, aside from the improvements already noted, are virtually condensed reproduction of the previous edition. Chapter 12 sets forth "Eggert's Method" for the numerical integration of the trajectory equations. Chapters 13 and 14 outline the construction by new methods, of ballistic and range tables. Appendices B and C treat of certain special problems; while appendices D and E briefly take up, respectively, the anti-aircraft and bombing problems. The book is of about the same size as the former one.

From the foregoing synopsis and a knowledge of the older work two things are easily appreciated. The Siacci-Ingalls method greatly predominates, and is treated in great detail. A better balancing, or better still a blending of the two methods could be expected, at least, if the preference is not to be given to the newer methods which are susceptible of being more readily presented to the intuitions. In any event there are so many minutiæ presented that the forest is hidden by trees. If the text were confined more to fundamentals, and less stress were laid on problem working, the student would learn more about the subject than merely the filling of forms with logarithms.

The last remark is, perhaps, a matter of opinion. The point of view exists that exercise in the manipulation of Siacci-Ingalls functions is more conducive to successful handling of range tables, etc., later on in the service, than is a course of instruction in which the essentials are emphasized with only a minimum of problem solving. Admittedly, both thorough attention to basic principles as well as extensive computations would be desirable, were there time for both; which, of course, there never is. However, the experience of many has been that this stress on detailed computation has only obscured the underlying facts. There is no need to rest on conjecture, though, for the question is subject to experimental determination.

The choice of "Eggert's Method" to represent the numerical integration procedure is unfortunate for two principal reasons. Firstly, since its publication in the PROCEEDINGS it has otherwise fallen into oblivion. Secondly, Moulton's method is more elegant, is actually used, and is equally easy to expound when understood. Neither method lends itself readily to exposition in writing, but either can be explained quite simply on the blackboard. For equal accuracy with Moulton's method, Eggert's, which is an application of the Cauchy-Lipschitz broken-line process, requires shorter intervals, as the effects of the approximate quadratures are more pronounced. Incidentally, Professor Moulton's name does not appear anywhere in the book, although he is responsible for a large part of the new methods.

An explanation of the methods of obtaining the differential variations by numerical integration has been avoided, which was perhaps not unwise in view of the circumstances under which the book was written. It may be pointed out, however, that the fact that the expressions involved, as usually written, contain Greek letters uncommon to naval literature does not constitute "a problem of a highly specialized nature." Undoubtedly, all the details of the methods would bulk too large for an elementary text, but an outline of the principles employed might be very profitably included.

The treatment of the projectile as a rotating rigid body, as bearing on gun and projectile design, is too inadequate to be considered at all up-to-date. In fact, there is almost no such treatment. Until fairly recently, our service has paid very little attention to this subject. It is therefore highly desirable that it be brought to general attention through the medium of the academic text book.

The typography of the book is excellent. No misprints were observed. There is no index, but it is made relatively unnecessary by the extensive table of contents.

Taken all in all, the book is an improvement over its predecessor. Captain W. S. Anderson, the Head of Department of Ordnance and Gunnery, is to be congratulated for inaugurating a long overdue revision.

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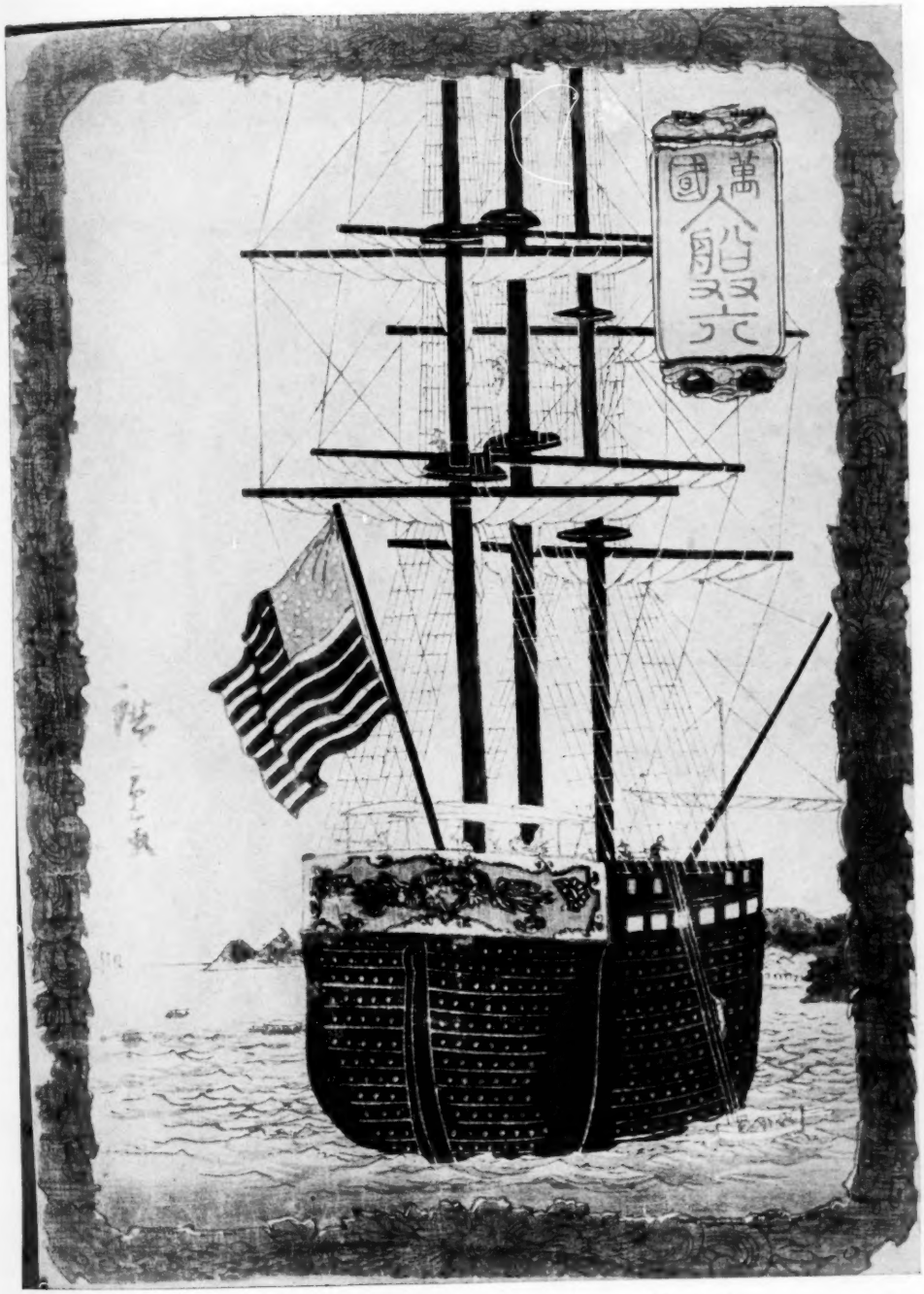

A SHIP OF PERRY'S SQUADRON

Portrait by Kiorokd Shimpu Kan

PORTRAIT OF CHIEF

A native of the Great United States of North America; Name, Adams. Costume red woolen Buttons and shoulder-clusters of Chinese brass. Age, something over 40 years. A General (Admiral?). Landed with 16 men at West Uraga Spring of 1854.

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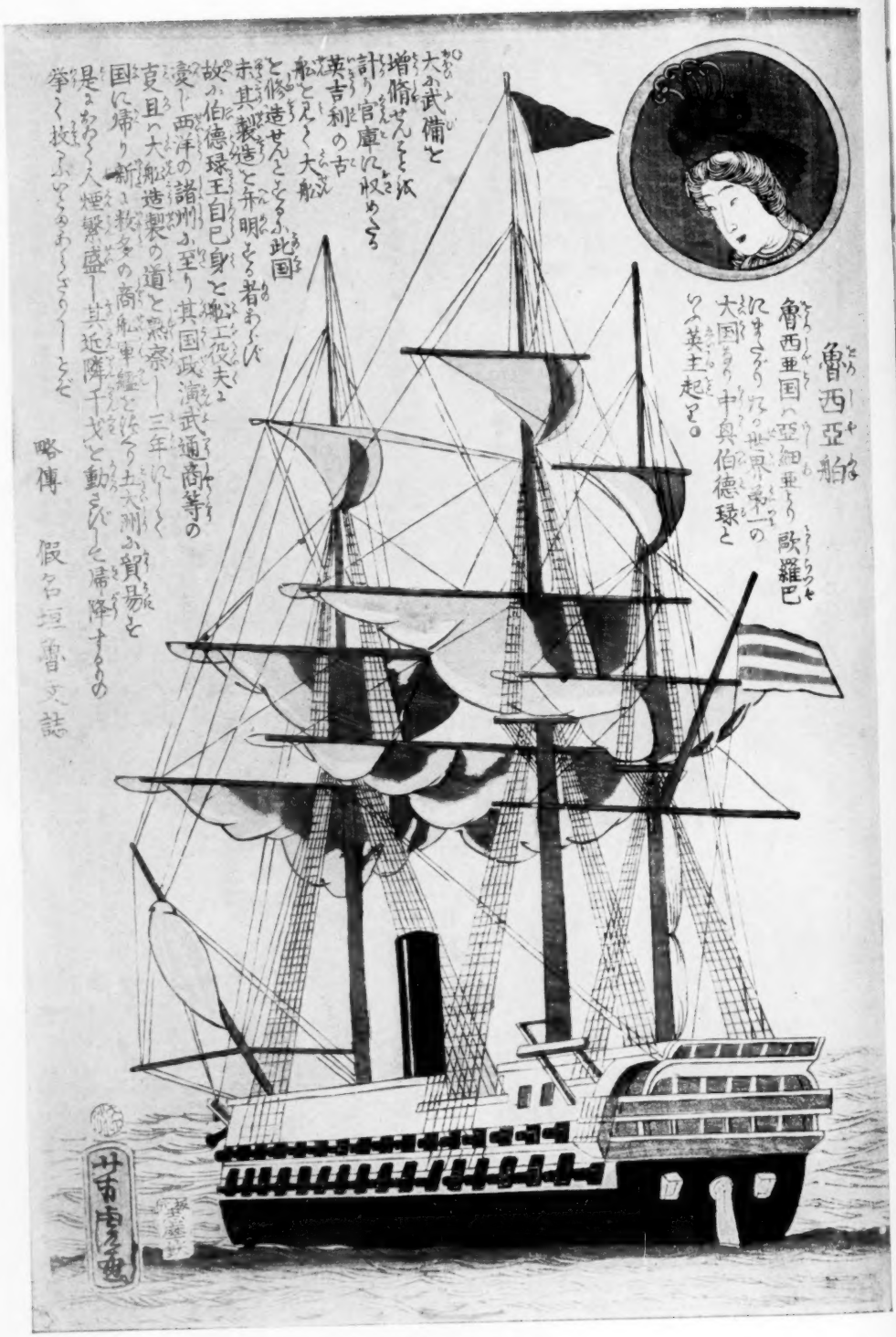
American Sentries



A Russian Ship

Courtesy of Captain James A. Randall (M.C.) U.S.N.

SHANGHAI BUND FROM THE RIVER

Courtesy of Captain James A. Randall (M.C.) U.S.N.

A YANGTSE RIVER PASSENGER BOAT

(It was in such a foreign "owned" boat that the Europeans and Americans went aboard in the recent evacuation of Hankow, 600 miles up the Yangtse River.)

Courtesy of Captain James A. Randall (M.C.) U.S.N.

A YANGTSE RIVER PASSENGER BOAT

(It was in such a foreign "owned" boat that the Europeans and Americans went aboard in the recent evacuation of Hankow, 600 miles up the Yangtse River.)

Courtesy of Captain James A. Randall (M.C.) U.S.N.

STREET SCENE—SHANGHAI

Courtesy of Captain James A. Randall (M.C.) U.S.N.

STREET SCENE, SHANGHAI

Courtesy of Captain James A. Randall (M.C.) U.S.N.

STREET SCENE, SHANGHAI

STREET SCENE NEAR GARDEN BRIDGE, SHANGHAI

River Life Soochow Creek and Wusung River, Shanghai

River Life Soochow Creek and Wusung River, Shanghai

Chinese Junk, Shanghai

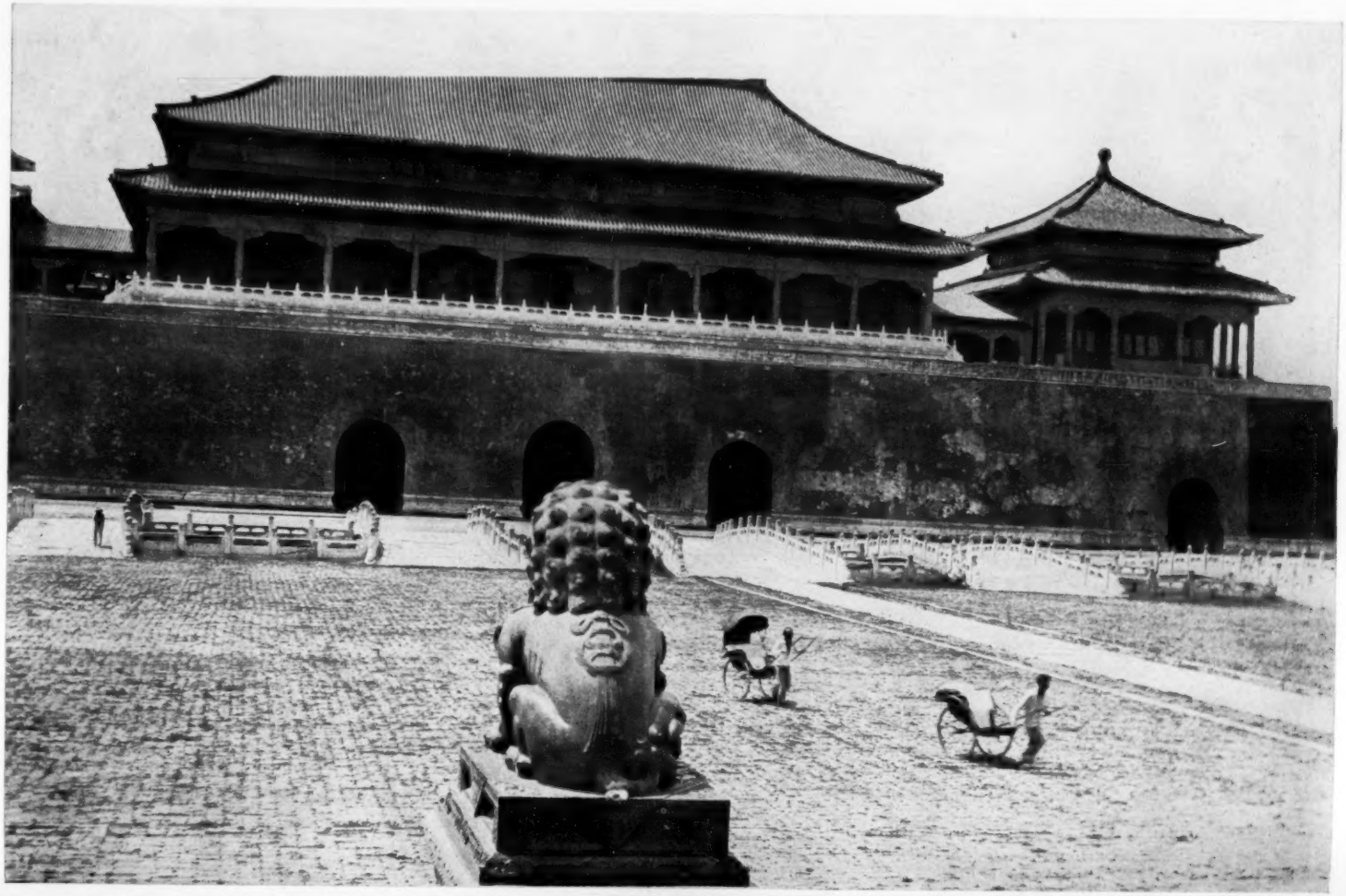
THE FAMOUS "BUBBLING WELL" OF FORMER YEARS, NANKING ROAD, SHANGHAI

THE LOONG WHA PAGODA, OUTSKIRTS OF SHANGHAI

THE FAMOUS "BUBBLING WELL" OF FORMER YEARS, NANKING ROAD, SHANGHAI

THE LEGATION (MARINE) GUARD, PEKING

The American Minister to China, the Late Paul S. Reinsch, and the Late Commander-in-Chief, U. S. Asiatic Fleet, Walter C. Cowles, U.S.N., About to Enter the Forbidden City, Peking, (1914) to Pay Respects to the First President of China, Yuan Shi Kai.



INSIDE THE FORBIDDEN CITY—PEKING—TAKEN BY PERMISSION OF PRESIDENT YUAN SHI KAI (1914), FIRST PRESIDENT OF CHINA

INSIDE THE FORBIDDEN CITY—PEKING—TAKEN BY PERMISSION OF PRESIDENT YUAN SHI KAI (1914), FIRST PRESIDENT OF CHINA

Secretary's Notes

The Prize Essay Contest, 1927

In the Prize Essay Contest for 1927 the Naval Institute's prize, consisting of a gold medal, $200 in cash, and life membership, was awarded to the author of the paper entitled, "Our Weakest Link," Lieutenant Commander Thomas L. Gatch, U.S.N.

The Board of Control awarded an Honorable Mention to the author of the essay entitled, "Cruiser Types," Lieutenant (retired) Franklin G. Percival, U.S.N. An award was made to the latter of $150 in cash.

See in this issue, immediately after these notes, the list of prize essays of former years.

The Washington Conference on the Limitation of Naval Armaments, 1921-1922

After reading in this issue the prize essay for 1927, "Our Weakest Link," a student of naval affairs is bound to have a clearer conception of the part played by the Navy as regards the policy of further limitation of naval armament.

Referring back to the Washington Conference for a moment, it will be recalled that:

(1) The American delegation reported that "Further considerations made it quite clear that no agreement for the limitation of land forces could be had at this time and that,

(2) "the American plan rested upon the application of these four principles:

(*a*) That all capital ship building programs, either actual or projected, should be abandoned;

(*b*) That further reduction should be made through the scrapping of certain of the oldest ships;

(*c*) That in general regard should be had to the existing naval strength of the Powers concerned;

(*d*) That capital ship tonnage should be used as the measurement of strength for navies and under proportionate allowance of auxiliary combatant craft prescribed."

(3) Secretary Hughes' plan was that the agreed maximum of capital ship tonnage should be as follows: For the United States, 500,000 tons; for Great Britain, 500,000 tons; for Japan, 300,000 tons.

(4) The plan as modified and agreed to at the conference became: For the United States, 525,000 tons; for the British Empire, 525,000 tons; for Japan, 315,000 tons.

(5) "In the original American proposal it was stated that the allowance of auxiliary combatant craft to each Power should be in proportion to the capital ship tonnage. The proposal for the three Powers—the United States, Great Britain, and Japan—was that the total tonnage of cruisers, flotilla leaders, and destroyers allowed each Power should be as follows: United States, 450,000 tons; Great Britain, 450,000 tons; Japan, 270,000; and that the total tonnage of submarines allowed each

of these Powers should be: United States, 90,000 tons; Great Britain, 90,000 tons; Japan, 54,000 tons.

"In the same proportion as the capital ship tonnage this would have left for France and Italy in the case of cruisers, flotilla leaders and destroyers, a maximum of 150,000 tons, for each of these Powers; and, in the case of submarines, a maximum of 30,000 tons each.

"This proposition was not accepted, but opposed both by Japan and France, Japan stating her willingness to adhere to the original proposal which allowed her 54,000 tons in submarines.

"In accepting the allowance for capital ships, France had made a distinct reservation. It was said that it would be impossible for the French government to accept reductions for light cruisers, torpedo boats, and submarines, corresponding to those which were accepted for capital ships. Accordingly, France maintained that her necessities required that she should be allowed 330,000 tons for cruisers, etc., and 90,000 tons for submarines.

"In view of the insistence on the part of the French delegation that they could not abate their requirements as to auxiliary craft and submarines, the British delegates stated that they were unable to consent to a limitation of auxiliary craft adapted to meet submarines.

"For this reason it was found to be impossible to carry out the American plan so far as limitation of auxiliary craft and submarines was concerned."

There were weeks of discussion in which a great number and variety of questions were considered, such as the *status quo* of the Powers concerned, affected as it was by the changes wrought by the World War and the new problems arising therefrom. Other questions finally injected themselves into the treaty as finally agreed upon, such as the naval bases in the western Pacific and their future fortification. Other questions were finally agreed upon and included in separate treaties, such as the Nine Power Treaty relative to Chinese and Far Eastern situation, the Four Power Treaty, and the treaty dealing with submarines and noxious gases. (For the text of the complete treaty on the limitation of naval armament, as agreed upon, please see the PROCEEDINGS for May, 1926, pages 1057-1076.)

It will be noted that the Washington Conference agreed finally to limit only the tonnage of two classes of vessels: viz., capital ships and aircraft carriers. There being no limitation placed upon cruisers, destroyers, submarines, and other auxiliary vessels, each of the five signatory Powers were perfectly free to acquire an unlimited tonnage, except for the individual cruisers, which were limited to not more than 10,000 tons. Of course there were other limitations as to the size of guns on cruisers, aircraft carriers and capital ships, not necessary to recall to mind at this time.

The Navy and the Statesman

All the above is water which has passed over the dam, and is well known. What is not so well known perhaps, and to the civilian especially, is that the Navy at the time of the Washington Conference and ever since has remained steadfastly loyal to the Statesman—to the head of the American Government—in its belief in the soundness of the 5-5-3 ratio of relative naval strength, as first proposed by Secretary Hughes. In addition, the Navy has remained loyal to the modified American proposal as finally adopted by the conferees,

and has never placed itself on record as favoring an increase of tonnage of the classes of vessels which were unlimited, over the original 5-5-3 ratio.

So far the Navy and the Statesman are and have been in thorough accord.

No one knows what the Navy advised Mr. Hughes and his two colleagues before he made his opening address, for the record has never been made public, but it *is* of record that the Navy has always felt that the country would have its safety guarded on the sea *if the original ratios for all types of vessels* had been adopted.

This is *not* saying that the naval advisers to the American delegates *actually* advised the specific amount of tonnage of the respective classes to be retained or advised the particular ship by name which was to be scrapped or retained; and the same applies to the naval bases in the Far East.

No one knows what this naval advice was for the records have never been published and probably never will be.

The *first* point is that it was the *Statesman's* job at the Washington Conference to make the decision (after being duly advised by the Navy) as to just what ratios, tonnage, ships, bases, etc., should be agreed upon to safeguard our country's interest. The Statesman determines the policy and he cannot shirk this responsibility and he alone is responsible to his countrymen.

The *second* point is that, so far as is known, no officer of the Navy has ever been but loyal to the 5-5-3 treaty as regards the ratio of strengths—the Navy Department has adopted its provisions in its official policies and they have been announced, printed, and distributed to the service.

The *third* point, despite statements to the contrary, is that the Navy now, as in the past, when the final decision has been made, stands at attention and salutes with a cheery "Aye, aye, sir."

President Coolidge has the same cheerful, loyal support of the Navy today that his long list of distinguished predecessors have had.

New Naval Arms Parley

As this issue of the PROCEEDINGS goes to press, announcement has been made that President Coolidge has invited the other four signatory powers to the Washington Conference to another parley for the further limitation of naval armaments, to be discussed at the coming Geneva Conference. The President hopes that further limitation principles may be agreed to for the other classes of vessels not now limited, and as originally proposed at the Washington Conference; and states that America is ready to accept the 5-5-3 ratio for cruisers, destroyers, submarines, and other auxiliary combatant vessels.

The Navy and the People

History records that no peoples have ever had fears of their own navies—the reason being that a navy cannot infringe upon a people's liberties; this being true, whether their government is an absolute monarchy or a republic. Tied to bases, as it were, ships cannot long retain command of the sea without them, and thus be seized by the people, easily becoming helpless. Indeed it has been claimed that for this very reason a navy should be controlled entirely by the executive power, in order to give greater security to the liberties of the people, so as to insure prompt action by the executive in time of emergency.

For example, the Secretary was once told by a British admiral (if the latter was correctly understood) that this was the underlying reason why the Royal Navy was so named; and

that further, the expression "His (Her) Majesty's Ship" accentuated the idea of personal control or ownership. It was also understood, theoretically at least, that the maintenance of the British Navy did not depend upon appropriations from year to year by Parliament, but that the fundamental law provided for continuing appropriations, and in this case was different from the law governing the appropriations for the British Army, which necessitated yearly appropriations, similar to the provisions of law governing appropriations for the United States Army and Navy; that in case of failure for any reason to pass the legislation authorizing funds, the Crown's employment of the Navy (theoretically) was not crippled. The idea was, of course, that the Navy could under no circumstances by itself, by order of the King, or by Parliament, be employed in any way to impair the liberties of the British people, and that in this way the system afforded a check. At the same time this allowed the Crown to act quickly with Britain's sea power when confronted by an outside danger whilst a domestic danger threatened internally. The Secretary has never verified from the records as to whether or not the impressions he received from the conversation referred to above were correct. As the conditions existed long years ago, the system referred to appears to have been a reasonable precaution on the part of the British people at the time.

Command Experience

The Secretary was speaking to another British admiral in 1919, shortly after the Admiralty had announced the new dispositions of the ships which were to compose the new fleets and squadrons, and which were to be assigned to foreign and distant stations.

The question was asked, "Why the departure in policy begun by Lord Fisher?" This was a reference to the policy of recalling all the important ships on foreign stations engaged in "showing the flag" and concentrating them in home waters, which eventually resulted some ten years later in that wonderful fighting machine known as the Grand Fleet.

Why the dispersion of its ships and the formation of numerous smaller commands on foreign stations under commanders with the title of commander-in-chief?

The answer was that now that the European danger was over Britain would pay too dearly if she denied herself the opportunity to train as many future commanders-in-chief as possible. One big fleet, whose ships always cruised together, trained but one commander-in-chief. All the eggs were in one basket. It was fine for the fleet but the leader after all was the decisive thing. If only one man was trained in individual responsibility and he failed, the selection of another to succeed him was largely luck. It took individual responsibility and training in independent command to try out prospective leaders. That there was no better way for the Admiralty to get a line on its selection of future commanders-in-chief than to allow as large a number as possible to get the independent experience.

Another reason advanced was that for fifteen years the great majority of the subordinate officers of the Royal Navy had cruised only in home waters; that the Admiralty felt that this had resulted in lessening their general cultural education, afforded by foreign contacts, and had a dampening tendency toward a more liberal outlook; that when these officers reached supreme command rank their perspective might not be as broad as a British commander-in-chief's should be.

Duration of Warship Commands

In connection with the above, it is interesting to refer to page 89 of the January issue of the PROCEEDINGS to a Professional Note which states there has recently been some criticism regarding the inequality in the length of time commanding officers are assigned command of British ships. In other words, with the reduced number of ships in commission "command" tours of duty are being shortened in order to give training to as many commanding officers as possible. Not being able to have its cake and eat it, too, the Admirality has again decided that the commander is everything—that it is "men not ships that win battles."

Aquino's Newest Sea and Air Navigation Tables

The Naval Institute has decided to publish a book by Commander Radler de Aquino, B.N., entitled *"Aquino's 'Newest' Sea and Air Navigation Tables."* The book will be handsomely bound in scarlet fabrikoid, size approximately six by nine inches, and will contain about 140 pages. The basic portion of the book will be the ninety pages of tables (from 0° to 90°) similar to the sample pages described and shown in the January, 1927, issue of the PROCEEDINGS. In his article in the January PROCEEDINGS, Commander Aquino said:

> The writer's ultimate goal for the last twenty-four years has always been to arrange the right-angled spherical triangle tables in such a way that they would present greater advantages than the well-known three argument inspection tables, where you enter with latitude, declination, and hour angle to find the altitude or the azimuth or both or where you enter with the latitude, declination, and altitude to find the hour angle and the azimuth of the position angle.
>
> Due to the particular arrangement of these tables and the number of arguments two sets always have to be used: one set for the latitude and declination of the same names and another for the latitude and declination of contrary names. Therefore, they are bulky, heavy, extensive, and expensive, if all the necessary arguments are carried in one, two or more volumes. We believe we have attained our goal after twenty-four years of close study and patient investigation of the subject.
>
> In only ninety pages—one page for each value of a—the "perpendicular"—and employing the latest methods available with very simple precepts, or none whatever, the writer hopes to show they represent the ideal navigation tables for use on the sea and in the air. They may be useful in many other problems requiring the use of right-angled spherics and this is the first time the tables appear complete. With two arguments above or below, the three unknown quantities in the right-angled spherical triangle are given to the nearest tenth of a minute of arc (within 3" of arc).

In addition to the ninety pages of the basic tables the new book will contain twenty-eight pages of auxiliary tables (thirteen of which are plain traverse tables) together with tables for conversion of time, altitude corrections to the sun, moon, and stars, etc., so that the possessor of the new book will need but one other, the *Nautical Almanac,* for all solutions of the astronomical triangle. There will be approximately twenty-two pages of text, giving various explanations of the uses of the tables and solutions of problems; the problems used will be the same one in Commander Dutton's new book, published by the Institute, entitled *Navigation and Nautical Astronomy.* In this manner ready comparisons may be made between the Aquino and other methods. The price of this book will be $5.00, postpaid.

Gas Warfare

In the next few months it is hoped that the PROCEEDINGS may contain an article on the subject of gas warfare, about which there is a great deal of concern in all countries, as well as ignorance, although the subject was under consideration at conferences long before the World War. "The Peace Conference at The Hague in 1907 resolved that the use of poison gases was

inhumane and they should not be used in shells. One delegate strongly opposed this resolution and he was the distinguished representative of the United States, Admiral Mahan, who stated his objections as follows:

"The objection that a machine of war is barbarous has always been raised against new weapons, which were nevertheless finally adopted. In the Middle Ages it was firearms which were denounced as cruel. Later, shells, and more recently, torpedoes have been denounced. It seems to me that it cannot be proved that shells with asphyxiating gases are inhumane or unnecessarily cruel machines of war, and that they cannot produce decisive results. I represent a people that is animated by a lively desire to make warfare more humane, but which may nevertheless find itself forced to wage war; therefore it is a question of not depriving itself through hastily adopted resolutions of means of which it could later avail itself with good results.

"England and Germany supported Mahan and did not sign The Hague agreement at once, but both did so later. This is as sound common sense now as when it was spoken. It was not the first official pronouncement by us in the same tenor. The Secretary of State, Mr. John Hay, in his instructions to the American delegates to the first Peace Congress at The Hague in 1899 said:

"The expediency of restraining the inventive genius of our people in the direction of devising means of defense is by no means clear; and considering the temptations to which men and nations may be exposed in a time of conflict, it is doubtful if an international agreement to this end would be effective. The dissent of a single powerful nation might render it altogether nugatory. The delegates are, therefore, enjoined not to give the weight of their influence to the promotion of projects, the realization of which is so uncertain."—*Military Surgeon.*

The use of noxious gases in warfare was prohibited in the treaty signed by the five signatory powers at the Washington Conference. The Treaty has not yet gone into effect for the reason that it has not yet been signed by all the powers. The U. S. Senate recently refused to take action on this matter and there has developed considerable opposition on the part of the American Legion and the majority of the leading chemists of the country to America's taking final action. As this is written, the headlines of a prominent New York daily read, "All Europe turns to gas warfare as defensive need. Nations are now storing up reservoirs of new deadly fumes and training men. In face of Treaty breach Paris orders flame throwing units in every battalion of Army. Encouraged by our stand. Failure to join compact is said to bar compact but Washington points to balking by France."

Old Ironsides

The movement to raise funds to save "Old Ironsides" has received considerable impetus and publicity on account of the new motion picture play entitled "Old Ironsides." Several weeks ago a prominent magazine gave several pages (not advertising) to a review of this picture, together with many interesting items dealing with the production of the play, and a couple of weeks later another magazine, circulation over a million, devoted a couple of pages to the same subject. The editor is planning to have included in an early issue of the PROCEEDINGS at least a group of four, and perhaps eight, illustrations of the *Constitution*, and it is hoped they will be of interest to our readers.

Certificates of Membership

The Board of Control has under consideration the proposition of presenting each new member of the Institute with an engraved certificate of membership in lieu of the formal letter apprising a member of his election. This proposition has been up at numerous times in the past, but our records do not show whether or not it was disapproved for any

reason other than expense. To supply each member with an engraved certificate would not cause very much additional expense over the method now in use when the time and postage involved in writing the formal letter are considered.

In the event that the proposition is finally approved, every regular and associate member of the Institute will, of course, be furnished with a certificate.

Nominations for Associate Membership

The Secretary announces that he has received a very generous response from the membership to his request for nominations for associate membership, and that there have been mailed already nearly 2,000 letters to friends of members thus nominated. In addition, a copy of the Constitution and By-Laws and a copy of the February issue of the PROCEEDINGS have been sent to the nominees.

It is earnestly requested that the regular members will also bring to the attention of their shipmates who are not members the desirability of their joining the Naval Institute.

Annual Meeting

At the time of this writing (February 12) the annual meeting has not taken place but is scheduled for February 17. It is expected that the subject of most importance to be discussed is the one regarding what further action, if any, the Naval Institute should take with regard to giving additional assistance to the Naval Historical Foundation.

At the present time it would appear that the proposed amendment to the Constitution and By-Laws, to increase the cash prize from $200 to "a sum not to exceed $500" will be carried. Further announcement in regard to the meeting, election of officers, the amendment to the Constitution, together with the financial statement, will be made in the next issue of the PROCEEDINGS.

Build Cruisers Now

While a great deal has appeared in the press and in the Professional Notes of the PROCEEDINGS with regard to the cruisers, it is believed the following editorial from the New York *Herald-Tribune* of January 25, is worth reprinting here, as it brings out the points not usually dwelled upon with regard to the destroyer leaders and to our constantly falling behind in cruiser, submarine and other tonnage. The editorial follows:

In his speech supporting appropriations this year for the last three of the eight modern cruisers authorized by the act of 1924, Senator Hale made a point which advocates of postponement or cancellation of this construction habitually overlook. Congress added these eight cruisers to the navy in the belief that they were needed at once and that 1925, 1926, 1927 and 1928 were the proper years in which to build them. Our navy's most acute shortage is in cruisers. In that classification, least of all, could we incur any suspicion of starting competitive building, since our cruiser strength is far below treaty ratio parity—further below than Great Britain's, Japan's, France's or Italy's. Moreover, there will be a breathing space between now and 1931, when replacements of capital ships begin and new construction in the destroyer class will also become most urgent.

The Washington treaty did not contemplate static navies. Limitations were put on tonnage strength in the capital ship classes. But new capital ships may be exchanged for old. Our smaller battleships will have to be replaced within the next decade. Our destroyers are of a type now too ancient. We have no destroyer leaders, invaluable for tactical handling of destroyer squadrons. Great Britain has eighteen, with a total tonnage of 31,310; France has thirteen, with a total tonnage of 31,791 (the French average per unit is more than 2,000 tons); Italy has eight, with a total tonnage of 14,889; Japan has four, with a total tonnage of 7,400. We have a big surplus of destroyers. But they average a little less than 1,200 tons per unit and lack entirely the facilities for squadron command offered by the modern destroyer leader.

We shall be occupied after 1931 in keeping our capital ship strength up to the mark. We are just completing two powerful aircraft carriers. By 1932 we ought to have an adequate modern cruiser fleet in sight. Great Britain is aiming at a 400,000 tonnage in cruisers—and will soon attain it. We have, built, building or authorized and appropriated for, a tonnage of only 125,000. We ought to appropriate at this session for three cruisers and then authorize ten more. That would bring our strength up to 255,000 tons—67,290 tons less than Great Britain's present cruiser strength. Between 1927 and 1932 all of the cruiser shortage—whatever it is—ought to be made up.

Now is the best time to build cruisers, armament limitation conference or no armament limitation conference. For even in such a conference an adequate American cruiser program would be the best possible encourager of cruiser restriction by agreement and real five-power treaty parity.

Naval Officers and International Law

The article appearing in this issue of the PROCEEDINGS, by the late Rear Admiral H. S. Knapp, deals more with the naval officer in diplomacy, as its title indicates, than it does with the naval officer in international law. There has been a considerable amount of debate in Congress, as well as in the press, as to certain questions of international law involved in the landing of armed forces in Nicaragua and in certain Chinese ports. The public is not very well informed of just what precedents and instructions govern naval officers. It may be said in a general way, that Rear Admiral Latimer in Nicaragua and Rear Admiral Williams in China are governed by the Navy Regulations, the treaties in force between the countries involved, the principles of international law, precedents, and special instructions. Many times in the past naval officers in similar situations have received these special instructions, either direct from the Secretary of the Navy or from the Navy Department, quoting the advice or opinion of the State Department, and sometimes from the President; but it must be remembered that in nearly all cases it is still up to the naval officer on the spot to decide what to do, and his is almost invariably the responsibility for the action taken.

Sometimes his action is absolutely contrary to that of his government and he runs the risk of censure not only of his government, but of his fellow countrymen as well. It may be recalled that Rear Admiral Benham's action in the harbor of Rio de Janeiro did not meet with the approval of Washington and he was on the point of being roundly censured and deprived of his command; but before this could take place his action met with such a warm reception throughout the United States that the contemplated action of the Washington authorities was squashed, thus finally receiving official approval.

The following quotations from the Navy Regulations, with which naval officers are familiar, are herein set down for our new civilian associate members, in order that they may read some of the known instructions. Of course, it must be remembered, as stated above, that there are other instructions such as international law, precedents, and special instructions.

ARTICLE 717

When at a port and not informed as to the officials present whom it is usual to visit, or as to the interchange of other courtesies, the commander-in-chief shall send an officer of his staff to the senior representative of the United States at the port, or in the absence of any such representative, to the highest local official to inform himself.

ARTICLE 718

1. The commander-in-chief shall preserve, so far as possible, the most cordial relations with the diplomatic and consular representatives of the United States in foreign countries and extend to them the honors, salutes, and other official courtesies to which they are entitled by these regulations.

2. He shall carefully and duly consider any request for service or other communications from any such representative.

3. Although due weight should be given to the opinions and advice of such representatives, a commanding officer is solely and entirely responsible to his own immediate superior for all official acts in the administration of his command.

ARTICLE 719

The commander-in-chief shall, as a general rule, when in foreign ports, communicate with local civil officials and foreign diplomatic and consular authorities through the diplomatic or consular representative of the United States on the spot.

ARTICLE 720

In the absence of a diplomatic or consular officer of the United States at a foreign port the commander-in-chief, as senior officer present, has authority:

(a) To exercise the powers of a consul in relation to mariners of the U.S. (Sec. 1433, R.S.); (b) To communicate or remonstrate with foreign civil authorities as may be necessary; (c) To urge upon citizens of the United States the necessity of abstaining from participation in political controversies or violations of the laws of neutrality.

ARTICLE 721

1. The Commander-in-chief shall exercise great care that all under his command scrupulously respect the territorial authority of foreign civilized nations in amity with the U.S.

2. No armed force for exercise, target practice, funeral escort, or other purposes shall be landed without permission from the local authorities; nor shall large bodies of men be granted leave to visit the shore without a similar permission; nor shall men be landed to capture deserters.

3. Target practice with guns or torpedoes shall not take place without permission from the government of the country concerned within foreign territorial waters or at any point from which shots may fall or torpedoes enter therein.

ARTICLE 722

On occasions where injury to the United States or to citizens thereof is committed or threatened, in violation of the principles of international law or treaty rights, the commander-in-chief shall consult with the diplomatic representative or consul of the United States, and take such steps as the gravity of the case demands, reporting immediately to the Secretary of the Navy all the facts. The responsibility for any action taken by a naval force, however, rests wholly upon the commanding officer thereof.

ARTICLE 723

The use of force against a foreign and friendly state, or against anyone within the territories thereof, is illegal.

The right of self-preservation, however, is a right which belongs to states as well as to individuals, and in the case of states it includes the protection of the state, its honor, and its possessions, and the lives and property of its citizens against arbitrary violence, actual or impending, whereby the state or its citizens may suffer irreparable injury. The conditions calling for the application of the right of self-preservation cannot be defined beforehand, but must be left to the sound judgment of responsible officers, who are to perform their duties in this respect with all possible care and forbearance. In no case shall force be exercised in time of peace otherwise than as an application of the right of self-preservation as above defined. It must be used as a last resort, and then only to the extent which is absolutely necessary to accomplish the end required. It can never be exercised with a view to inflicting punishment for acts already committed.

ARTICLE 724

1. Whenever, in the application of the above mentioned principles, it shall become necessary to land an armed force in foreign territory on occasions of political disturbance where the local authorities are unable to give adequate protection to life and property, the assent of such authorities, or of some one of them, shall first be obtained, if it can be done without prejudice to the interests involved.

2. Due to the ease with which the Navy Department can be communicated with from all parts of the world, no commander-in-chief, flag officer, or commanding officer shall issue an ultimatum to the representative of any foreign government, or demand the performance of any service from any such representative that must be executed within a limited time, without first communicating with the Navy Department, except in extreme cases where such action is necessary to save life.

ARTICLE 725

The right of asylum for political or other refugees has no foundation in international law. In countries, however, where frequent insurrections occur, and constant instability of government exists, usage sanctions the granting of asylum; but even in the waters of such countries, officers should refuse all applications for asylum except when required by the interests of humanity in extreme or exceptional cases such as the pursuit of a refugee by a mob. Officers must not directly or indirectly invite refugees to accept asylum.

ARTICLE 726

So far as lies within their power, commanders-in-chief, division commanders, and commanding officers of ships shall protect all merchant vessels of the United States in lawful occupations, and advance the commercial interests of this country, always acting in accordance with international law and treaty obligations.

ARTICLE 727

The commander-in-chief shall impress upon officers and men that when in foreign ports it is their duty to avoid all possible causes of offense to the authorities or inhabitants; that due deference must be shown by them to the local laws, customs, ceremonies, and regulations; and that in all dealings with foreigners moderation and courtesy should be displayed, and that a feeling of good will and mutual respect should be cultivated.

China With regard to the present Chinese situation, many have wondered why the League of Nations has not been called on to handle the trouble, but the answer probably would be that the affair is a domestic one.

There have been many reasons assigned for the present outbreak, such as a growing nationalistic spirit among the Chinese, the delay in the powers which signed the Nine Power Treaty in doing anything practicable to comply with the terms of the treaty, etc. To get a complete perspective, however, one would have to study all that has taken place in the Far East from 1914-15 to the present day. Perhaps go back farther.

In this issue of the PROCEEDINGS there have been included a number of special illustrations showing scenes in and around Shanghai. The Secretary feels it worth while to include these, as he has found that there is a large percentage of naval officers who have never served on the China station, and it is hoped that the pictures will likewise prove interesting to others.

The Wanhsien Epic Perhaps the following editorial from the *Central China Post* of September 13, 1926, will help serve to picture the stirring scene on the Yangtse, and will further show what the naval officer (in this case, British) is up against:

"No one reading the restrained account of the Wanhsien fight for British honor, as told to our representative, on Friday last, would form a just estimate of the danger run, the odds against our men, and the heroism and dogged determination that carried them through. We have waited until it was possible to get into personal touch with some of those who were in the fight before venturing to comment on the affair. The stories as told by various eyewitnesses add graphic touches to the sober statement of fact made by those accustomed to give terse, official reports of such occurrences. Both are necessary,—accurate observation and restrained statement as well as the personal touch supplied by individual narratives not intended, in the first place, for publication—before an adequate conception of the Wanhsien episode can be formed.

"Lest the event should obscure the cause that led to it, let us weigh the evidence against Yang Sen and decide whether or not it was an act of piracy and therefore whether or not the shelling of his headquarters and barracks was the clearing out of a nest of pirates

making a last bid for the right which unchecked force gives to set at nought international courtesy to merchant shipping.

"The cause that led to the disastrous result was a determined attempt on the part of Yang Sen to compel British shipping to carry his soldiers up and down the Upper Yangtse as his will inclined. His method of procedure was to send a small party of camouflaged soldiers on board at a port of call as though they were ordinary passengers. On arrival at the desired place of call, these soldiers drew their automatics, rushed to the engine room and bridge and so tried to enforce the carrying of troops already awaiting the ship by force of arms, even though they had been informed that the British government forbade ships sailing under the British flag carrying troops for either side in this civil war, as they considered it a breach of neutrality.

"At Wanhsien the Chinese forced an issue. The instigation and provocation was entirely on their side; and this should be kept in mind in review of the situation created. Twenty thousand of Yang Sen's troops were mobilized for this test; batteries of guns were placed on the foreshore and at vantage points on the heights and in positions amongst the houses, which are built on a slope rising upwards from the river to the flat plateau on which were placed Yang Sen's barracks and headquarters. The foreshore was packed with riflemen well placed, and some eleven guns were in position firing from five points, some at about fifty-yard range from the gunboats concerned. Such was the stage set for the drama.

"We have mentioned the primal cause to use the pet language of the logician, the modal cause was the colliding of a sampan with SS. *Wanliu* under the following circumstances. At Yun-yang, some forty-odd miles below Wanhsien, soldiers were stationed to await the arrival of the *Wanliu*. When nearing this place disguised soldiers to the number of sixteen tried to rush the bridge in the usual way but were prevented by the ship's officers. Sampans containing soldiers were in the stream, and in attempting to avoid one of them the *Wanliu* collided with another; but as this sampan was surrounded by other sampans and there was every probability of the men being saved, the *Wanliu* proceeded. A hot fire was opened on her from both banks of the stream by the enraged soldiery—enraged because this part of the plan had miscarried.

"Then ensued the commandeering of the ships *Wanhsien* and *Wantung*, and the incidents narrated in our issue of September 11. These ships could have cleared but for the fact that Yang Sen held the officers as hostages and threatened them with instant death if there was any movement of the boats attempted, some 400 or 500 soldiers being placed on each boat, barricaded in such a way as to command every part of the decks.

"The naval authorities were placed in the position of having to choose between organizing an expedition to secure the return of these boats and taking the burden of losses on themselves, or sacrificing their fellow-countrymen as hostages. They chose the former alternative.

"The advantages were with Yang Sen as regards position, ranges, number of troops and guns. There were three small boats employed in this expedition: SS. *Kiawo*, an adapted upper-river passenger boat, manned by men from the navy and carrying Commander Darley, of H.M.S. *Despatch*, in command; H.M.S. *Widgeon*, and H.M.S. *Cockchafer;* and these were lying at the bottom of a basin commanded by the enemy's fire—all told there were 110 officers and men to navigate the boats and do the fighting as well.

"It had been surmised that a surprise would be possible; and that when the *Kiawo* drew alongside the *Wanhsien* those on board, seeing the armed men, would down arms.

But Yang Sen was under the impression that the British Navy in the East was for show purposes only and would on no account be allowed to fire a shot. He had also been informed ahead of the expedition, had made his dispositions, and himself retired to a place of safety. The first man to step on board the *Wanhsien* received a hurricane of bullets from the barricaded Chinese. Commander Darley, just before his fall, seems to have given orders to the gunboats to open fire. Lieutenant Ridge was the last seen to fall, riddled with bullets, after most gallantly holding an alley-way full of armed men. When his body was recovered there were fifteen wounds. For a full hour the *Kiawo* remained grappled to the *Wanhsien*, not only receiving the fire of the hundreds on board, but also of the thousands on the foreshore and those throughout the city as well. It speaks most significantly of the gallantry of the little band who remained that a second time, after being compelled to loose her grip for a while, the *Kiawo* was brought back in a heroic endeavor to secure the wounded and the dead belonging to her little complement. The bodies of Commander Darley and three ratings were not recovered.

"Lieutenant Commander Acheson, on the *Cockchafer* had just given the order for action, and stepped on to the ladder leading to the bridge, when one of the sharp-shooters, especially detailed to mark the officers, got him through the back. The bullet fortunately passed through his belt and so was deflected and missed a vital part. He fell to the deck, and for over two hours the gallant commander lay on his back directing operations. But when all behaved as very gallant gentlemen, whether remaining below not knowing what might happen, or whether fighting for the honor of their country's flag in close grips with vastly superior numbers, it is not possible to do other than salute the heroic company who at the call of duty went off on this 'forlorn hope' and once again justified their country's trust in the senior service.

"And as to the results, it is too early to write. The immediate results, or some of them, can be seen. Significant is the silence of the native press on this expedition; significant, too, is the campaign already begun against the "Imperialists" in connection with the first happenings at Wanhsien and the magnification of the sampan incident into the sinking of two junks with the loss of fifty-six soldiers and $85,000 in specie belonging to the soldiers' pay chest. Is it the beginning of an agitation that is to be seen in the groups of well-dressed individuals haranguing groups on the native streets? Will the envoys from Yang Sen, said to be on their way with offers of reparation and so forth if only the further expedition is not sent, make for a healthy cessation of this piracy on the Upper River? Will the Wanhsien incident put a period to the vexatious official persecution shippers have long-time suffered on these waters? Or will it be but the opening of another chapter of troubles which will lead to still greater issues? With these and many other kindred questions, it is not our purpose to deal this morning. Our purpose is to put on record the appreciation of Britishers throughout China, to say the least, of the splendid work done by the men of the navy in teaching Yang Sen a well needed lesson; and also to commemorate the Wanhsien epic—the fight of 110 against the 20,000."

LIST OF PRIZE ESSAYS

"WHAT THE NAVY HAS BEEN THINKING ABOUT"

1879. **Prize.** Naval Education. Lieutenant Commander A. D. Brown, U.S.N.
First Honorable Mention. Naval Education. Lieutenant Commander C. F. Goodrich, U. S. N.
Second Honorable Mention. Naval Education. Commander A. T. Mahan, U.S.N.

1880. **Prize.** The Naval Policy of the United States. Lieutenant Charles Belknap, U.S.N.

1881. **Prize.** The type of (I) Armored Vessel, (II) Cruiser Best Suited to the Present Needs of the United States. Lieutenant E. W. Very, U.S.N.
Honorable Mention (same subject as Prize). Lieutenant Seaton Schroeder, U.S.N.

1882. **Prize.** Our Merchant Marine: The Causes of Its Decline and the Means to Be Taken for Its Revival. Lieutenant J. D. J. Kelly, U.S.N.
Honorable Mention (same subject as Prize). Master C. G. Calkins, U.S.N.
Honorable Mention (same subject as Prize). Lieutenant Commander F. E. Chadwick, U.S.N.
Honorable Mention (same subject as Prize). Lieutenant R. Wainwright, U.S.N.

1883. **Prize.** How May the Sphere of Usefulness of Naval Officers Be Extended in Time of Peace with Advantage to the Country and the Naval Service? Lieutenant Carlos G. Calkins, U.S.N.
First Honorable Mention (same subject as Prize). Commander N. H. Farquhar, U.S.N.
Second Honorable Mention (same subject as prize). Captain A. P. Cooke, U.S.N.

1884. **Prize.** The Reconstruction and Increase of the Navy. Ensign W. I. Chambers, U.S.N.

1885. **Prize.** Inducements for Retaining Trained Seamen in the Navy, and Best System of Rewards for Long and Faithful Service. Commander N. H. Farquhar, U.S.N.

1886. **Prize.** What Changes in Organization and Drill Are Necessary to Sail and Fight Effectively Our Warships of Latest Type? Lieutenant Carlos G. Calkins, U.S.N.
Honorable Mention. The Result of All Naval Administration and Efforts Finds Its Expression in Good Organization and Thorough Drill on Board of Suitable Ships. Ensign W. L. Rodgers, U.S.N.

1887. **Prize.** The Naval Brigade: Its Organization, Equipment and Tactics. Lieutenant C. T. Hutchins, U.S.N.

1888. **Prize.** Torpedoes. Lieutenant Commander W. W. Reisinger, U.S.N.

1891. **Prize.** The Enlistment, Training and Organization of Crews for Our Ships of War. Ensign A. P. Niblack, U.S.N.
Honorable Mention. Disposition and Employment of the Fleet: Ship and Squadron Drill. Lieutenant R. C. Smith, U.S.N.

1892. **Prize.** Torpedo-boats: Their Organization and Conduct. Wm. Laird Clowes.

1894. **Prize.** The U.S.S. *Vesuvius*, with Special Reference to Her Pneumatic Battery. Lieutenant Commander Seaton Schroeder, U.S.N.
Honorable Mention. Naval Reform. Passed Assistant Engineer F. M. Bennett, U.S.N.

1895 **Prize.** Tactical Problems in Naval Warfare. Lieutenant Commander Richard Wainwright, U.S.N.
Honorable Mention. A Summary of the Situation and Outlook in Europe. An Introduction to the Study of Coming War. Assistant Naval Constructor Richmond Pearson Hobson, U.S.N.
Honorable Mention. Suggestions for Increasing the Efficiency of Our New Ships. Naval Constructor Wm. J. Baxter, U.S.N.
Honorable Mention. The Battle of the Yalu. Ensign Frank Marble, U.S.N.

1896. **Prize.** The Tactics of Ships in the Line of Battle. Lieutenant A. P. Niblack, U.S.N.
Honorable Mention. The Organization, Training and Discipline of the Navy Personnel as Viewed from the Ship. Lieutenant Wm. F. Fullam, U.S.N.
Honorable Mention. Naval Apprentices, Inducements, Enlisting and Training. The Seaman Branch of the Navy. Ensign Ryland D. Tisdale, U.S.N.
Honorable Mention. The Composition of the Fleet. Lieutenant John M. Ellicott, U.S.N.

1897. **Prize.** Torpedo-boat policy. Lieutenant R. C. Smith, U.S.N.
Honorable Mention. A Proposed Uniform Course of Instruction for the Naval Militia. H. G. Dohrman.
Honorable Mention. Torpedoes in Exercise and Battle. Lieutenant J. M. Ellicott, U.S.N.

1898. **Prize.** Esprit de Corps: A Tract for the Times. Captain Caspar Frederick Goodrich, U.S.N.
Honorable Mention. Our Naval Power. Lieutenant Commander Richard Wainwright, U.S.N.
Honorable Mention. Target Practice and the Training of Gun Captains. Ensign R. H. Jackson, U.S.N.

1900. **Prize.** Torpedo Craft: Types and Employment. Lieutenant R. H. Jackson, U.S.N.
Honorable Mention. The Automobile Torpedo and Its Uses. Lieutenant L. H. Chandler, U.S.N.

1901. **Prize.** Naval Administration and Organization. Lieutenant John Hood, U.S.N.

1903. **Prize.** Gunnery in Our Navy. The Causes of Its Inferiority and Their Remedies. Professor Philip R. Alger, U.S.N.
Honorable Mention. A Naval Training Policy and System. Lieutenant James H. Reid, U.S.N.
Honorable Mention. Systematic Training of the Enlisted Personnel of the Navy. Lieutenant C. L. Hussey, U.S.N.
Honorable Mention. Our Torpedo-boat Flotilla. The Training Needed to Insure Its Efficiency. Lieutenant E. L. Beach, U.S.N.

1904. **Prize.** The Fleet and Its Personnel. Lieutenant S. P. Fullinwider, U.S.N.
Honorable Mention. A Plea for Higher Physical, Moral and Intellectual Standard of the Personnel for the Navy. Medical Inspector Howard E. Ames, U.S.N.

1905. **Prize.** American Naval Policy. Commander B. A. Fiske, U.S.N.
Honorable Mention. The Department of the Navy. Rear Admiral Stephen B. Luce, U.S.N.

1906. **Prize.** Promotion by Selection. Commander Hawley O. Rittenhouse, U.S.N.
First Honorable Mention. The Elements of Fleet Tactics. Lieutenant Commander A. P. Niblack, U.S.N.
Second Honorable Mention. Gleanings from the Sea of Japan. Captain Seaton Schroeder, U.S.N.
Third Honorable Mention. The Purchase System of the Navy. Pay Inspector J. A. Mudd, U.S.N.

1907. **Prize.** Storekeeping at the Navy Yards. Pay Inspector John A. Mudd, U.S.N.
First Honorable Mention. Battle Rehearsals. A Few Thoughts on Our Next Step in Fleet-Gunnery. Lieutenant Commander Yates Stirling, Jr., U.S.N.
Second Honorable Mention. The Naval Profession. Commander Bradley A. Fiske, U.S.N.

1908. **Prize.** A Few Hints to the Study of Naval Tactics. Lieutenant W. S. Pye, U.S.N.
First Honorable Mention. The Money for the Navy. Pay Inspector John A. Mudd, U.S.N.
Second Honorable Mention. The Nation's Defense—the Offensive Fleet. How Shall We Prepare It for Battle? Lieutenant Commander Yates Stirling, Jr., U.S.N.

1909. **Prize.** Some Ideas about Organization on Board Ship. Lieutenant Ernest J. King, U.S.N.
Honorable Mention. The Navy and Coast Defense. Commodore W. H. Beehler, U.S.N.
Honorable Mention. The Reorganization of the Naval Establishment. Pay Inspector J. A. Mudd, U.S.N.
Honorable Mention. A Plea for Physical Training in the Navy. Commander A. P. Niblack, U.S.N.

1910. **Prize.** The Merchant Marine and the Navy. Naval Constructor T. G. Roberts, U.S.N.
Honorable Mention. The Naval Strategy of the Russo-Japanese War. Lieutenant Lyman A. Cotten, U.S.N.

1911. **Prize.** Navy Yard Economy. Paymaster Chas. Conard, U.S.N.

Honorable Mention. Naval Power. Captain B. A. Fiske, U.S.N.
Honorable Mention. Wanted—First Aid. Commodore C. C. Marsh, U.S.N.

1912. **Prize.** Naval Might. Lieutenant Ridgely Hunt, U.S.N.
Honorable Mention. Inspection Duty at the Navy Yards. Lieutenant Commander T. D. Parker, U.S.N.

1913. **Prize.** The Greatest Need of the Atlantic Fleet. Lieutenant Commander Harry E. Yarnell, U.S.N.
First Honorable Mention. Navy Department Organization. A Study of Principles. Commander Yates Stirling, Jr., U.S.N.
Second Honorable Mention. Trained Initiative and Unity of Action. Lieutenant Commander Dudley W. Knox, U.S.N.

1914. **Prize.** The Great Lesson from Nelson for Today. Lieutenant Commander Dudley W. Knox, U.S.N.
Honorable Mention. Naval Policy as It Relates to the Shore Establishment and the Maintenance of the Fleet. Captain John Hood, U.S.N.
Honorable Mention. Old Principles and Modern Applications. Lieutenant Commander Dudley W. Knox, U.S.N.
Honorable Mention. Military Preparedness. Naval Constructor Richard D. Gatewood, U.S.N.

1915. **Prize.** The Rôle of Doctrine in Naval Warfare. Lieutenant Commander Dudley W. Knox, U.S.N.
First Honorable Mention. An Air Fleet: Our Pressing Naval Want. Lieutenant Commander Thomas Drayton Parker, U.S.N.
Second Honorable Mention. Tactics. Ensign H. H. Frost, U.S.N.
Third Honorable Mention. Defense Against Surprise Torpedo Attack. Ensign R. T. Merrill, 2d, U.S.N.

1916. **Prize.** The Moral Factor in War. Lieutenant (J.G.) H. H. Frost, U.S.N.
First Honorable Mention. Naval Personnel. Lieutenant Commander J. K. Taussig, U.S.N.
Second Honorable Mention. Education at the U. S. Naval Academy. Lieutenant Ridgely Hunt, U.S.N.
Third Honorable Mention. Some Underlying Principles of Morale. Commander Dudley W. Knox, U.S.N.
Lippincott Prize Essay. Large vs. A Greater Number of Smaller Battleships. Lieutenant Commander Thomas Lee Johnson, U.S.N.

1917. **Prize.** Commerce Destroying in War. Commander Lyman A. Cotten, U.S.N.
First Honorable Mention. The People's Rôle in War. Lieutenant H. H. Frost, U.S.N.
Second Honorable Mention. The Nation's Greatest Need. Colonel Dion Williams, U. S. Marine Corps.

1918. **Prize.** Letters on Naval Tactics. Lieutenant H. H. Frost, U.S.N.
First Honorable Mention. The Preparedness of the Future. Commander H. O. Rittenhouse, U.S.N. Retired.
Second Honorable Mention. Naval Strategy. Rear Admiral Bradley A. Fiske, U.S.N.

1919. **First Honorable Mention.** Military Character. Captain Reginald R. Belknap, U.S.N.
Second Honorable Mention. Some Reflections on the Three Factors of Battleship Design. Lieutenant Commander B. S. Bullard, (CC), U.S.N.

1920. **Prize.** The Battleship. Commander E. F. Eggert, (CC), U.S.N.
First Honorable Mention. Some Ideas about the Effect of Increasing the Size of Battleships. Captain E. J. King, U.S.N.
Second Honorable Mention. U. S. C. N. Lieutenant Commander K. C. McIntosh, (SC), U.S.N.

1921. **Prize.** Accuracy of Fire at Long Ranges. Captain J. V. Chase, U.S.N.
Honorable Mention. A Description of the Battle of Jutland. Lieutenant Commander H. H. Frost, U.S.N.
Honorable Mention. Possibilities of a Trans-Pacific Flight. Commander G. C. Westervelt (CC), U.S.N., and H. B. Sanford.

1922. **Honorable Mention.** A Study of Our Naval Personnel Situation. Captain J. K. Taussig, U.S.N.
Honorable Mention. Naval Aviation and a United Air Service. Captain T. T. Craven, U.S.N.
Honorable Mention. Leadership. Captain R. D. White, U.S.N.

1923. **Prize.** Some Considerations Affecting Naval Polity. Rear Admiral W. V. Pratt, U.S.N.
Honorable Mention. Is the Fleet Strategically Concentrated? Commander F. M. Perkins, U.S.N.

1924. **Honorable Mention.** Our Tactical Readiness for War. Commander Russell Willson, U.S.N.

1925. **Prize.** The Trend of Naval Affairs. Lieutenant (j.g.) R. E. Krause, U.S.N.
First Honorable Mention. History Repeats. Lieutenant Commander O. C. Badger, U.S.N.
Second Honorable Mention. National Strategy. Lieutenant Commander H. H. Frost, U.S.N.

1926. **Prize.** The Battleship and Its Uses. Hector C. Bywater.
First Honorable Mention. Limitation of Naval Armament. Captain W. S. Anderson, U.S.N.
Second Honorable Mention. Some Aspects of Our Air Policy. Rear Admiral W. V. Pratt, U.S.N.

1927. **Prize.** Our Weakest Link. Lieutenant Commander T. L. Gatch, U.S.N.
Honorable Mention. Cruiser Types. Lieutenant (Retired) F. G. Percival, U.S.N.